

(Adopted January 8, 2021)

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, mills, 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 melting furnaces and associated emission control devices.
- (2) ALLOY STEEL means a steel that contains a variety of elements, such as manganese, silicon, nickel, titanium, copper, chromium, and aluminum, in total amounts between 1.0 and 50 percent by weight, in addition to iron and carbon.
- (3) APPROVED CLEANING METHODS means cleaning using wet wash, wet mop, damp cloth, or low pressure spray; sweeping with use of dust suppressing sweeping compounds; or vacuuming with a vacuum equipped with filter(s) rated by the manufacturer to achieve a 99.97 percent 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).
- (6) BUILDING 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.

- (c) (7) CAPTURE VELOCITY means the minimum hood induced air velocity necessary to capture and convey air contaminants into an emission collection system.
- (8) CASTING means the process of pouring molten metal into a mold or core assembly and then allowing to solidify.
- (9) CASTING MATERIAL means any material that is used to form the die, mold, or core assembly in the casting process, including but not limited to, sand, plastic, ceramic, plaster, and clay.
- (10) CHROMIUM ALLOY means any metal that is at least 0.5 percent chromium by weight, including, but not limited to, alloy steel, chromium non-ferrous alloy, stainless steel, and superalloy.
- (11) CHROMIUM ALLOY MELTING FACILITY means any facility that is conducting chromium alloy melting where the facility is located on one or more contiguous properties within the South Coast AQMD, in actual physical contact or separated solely by a public roadway or other public right-of-way, and is owned or operated by the same person (or by person(s) under common control).
- (12) 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.
- (13) CHROMIUM ALLOY MELTING OPERATION means any process conducted where a chromium alloy is melted, poured, casted, and finished including melting in a furnace, casting, casting material removal, metal grinding, and metal cutting.
- (14) CHROMIUM NON-FERROUS ALLOY means any alloy that contains less than one percent iron by weight and at least 0.5 percent chromium by weight.
- (15) DIE-CASTER means any facility, operation, or process where molten metal is forced under pressure into a mold cavity.
- (16) DROSS means the impurities discharged, in solid state, from the metal melting process.
- (17) 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.
- (18) 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.

- (c) (19) DUST SUPPRESSING SWEEPING COMPOUND means non-grit-, oil- or waxed, hygroscopic, or water-based materials used to minimize dust from becoming airborne during sweeping.
- (20) 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 the *Industrial Ventilation: A Manual of Recommended Practice for Design*, published by the American Conference of Governmental Industrial Hygienists at the time the permit application is deemed complete by the South Coast AQMD.
- (21) 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.
- (22) 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, that is at least six inches taller than the height of the materials contained in the space, and that screens the materials stored therein to prevent emissions of the materials into the air.
- (23) FINISHING means a metal removal or reshaping process in order to achieve the desired dimensions, physical shape, or surface finish for the metallic parts or casts including, but not limited to, cutting, grinding, sanding, or machining.
- (24) FOUNDRY means any facility, operation, or process where metal or a metal alloy is melted and cast.
- (25) 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.
- (26) FURNACE CHARGE means all materials that are added to a chromium alloy melting furnace and brought to a molten state.
- (27) HEXAVALENT CHROMIUM means the form of chromium in a valence state of +6.

- (c) (28) **LOW PRESSURE SPRAY** means a liquid stream with a pressure of 35 pounds per square inch or less.
- (29) **MAINTENANCE AND REPAIR ACTIVITY** means a routine process conducted on equipment and/or machinery to keep such equipment in working order or to prevent breakdowns. It also includes an operation or activity to return a damaged 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;
 - (B) Replacement or removal of any duct section associated with 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.
- (30) **METAL CUTTING** means a process used to abrasively cut or saw chromium alloy-containing materials, including, but not limited to, ingots, logs, billet stocks, castings, or formed parts, not conducted under a continuous flow of metal removal fluid.
- (31) **METAL GRINDING** means a process used to grind chromium alloy-containing materials, including, but not limited to, ingots, logs, billet stocks, castings, or formed parts, not conducted under a continuous flow of metal removal fluid.
- (32) **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.
- (33) **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.

- (c) (34) 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 was:
- (A) Generated at the chromium alloy melting facility as a result of a casting or forming process; or
 - (B) Generated at another facility as a result 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.
- (35) 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. A school also includes 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 school includes any building or structure, playground, athletic field, or other area of school property.
- (36) 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.
- (37) SENSITIVE RECEPTOR means any residence including private homes, condominiums, apartments, and living quarters. A sensitive receptor also includes schools, daycare centers, health care facilities such as hospitals or retirement and nursing homes, long-term care hospitals, hospices, prisons, and dormitories or similar live-in housing.
- (38) SLAG means the by-product material discharged, in melted state, from the metal melting process.
- (39) SMELTER means any facility, operation, or process where heat is applied to ore in order to melt out a base metal.
- (40) STAINLESS STEEL means a steel alloy with a minimum of 10.5 percent chromium content by mass.
- (41) STEEL means a metal alloy of iron and carbon and other elements.
- (42) SUPERALLOY means a heat-resistant metal alloy based on nickel, iron, or cobalt.

(c) (43) USED CASTING MATERIAL means any material that has been exposed to molten metal in the casting process, including but not limited to, sand, plastic, ceramic, plaster, and clay.

(d) Emission Control Requirements

(1) On and after July 1, 2024, 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 and associated emission control devices as demonstrated through source tests pursuant to subdivision (h).

Table 1: Aggregate Hexavalent Chromium Emission Limits

Distance to Sensitive Receptor (meters)	Aggregate Hexavalent Chromium Emission Limit (milligrams per hour)
Less than 50	0.40
50 to 100	1.5
Greater than 100	1.8

- (A) The distance to the sensitive receptor in Table 1 shall be measured from the stack or centroid of two or more stacks to the nearest property line of the closest sensitive receptor, rounded to the nearest meter.
- (B) The distance to the nearest sensitive receptor in Table 1 shall be measured at the time the permit application(s) pursuant to paragraph (d)(5) is deemed complete with the South Coast AQMD.
- (C) If the location of the emission point of the stack or centroid of the emission points of two or more stacks changes or the throughput of chromium alloys processed in a Permit to Operate increases, the owner or operator shall:
 - (i) No later than 90 days after the change in stack or centroid of stack emission point location or increase in chromium alloy processing throughput, submit to the Executive Officer a South Coast AQMD permit application(s) to reconcile their permit(s) with the requirements of this rule;

- (d) (1) (C) (ii) Re-measure the distance to the nearest sensitive receptor at the time the permit application(s) pursuant to clause (d)(1)(C)(i) is deemed complete with the South Coast AQMD; and
 - (iii) No later than 18 months after the change in stack or centroid of stack emission point location or increase in chromium alloy processing throughput, not exceed the limits listed in Table 1 – Aggregate Hexavalent Chromium Emission Limits for all chromium alloy melting furnaces and associated emission control devices as demonstrated through source tests pursuant to subdivision (h).
- (2) On and after July 1, 2024, 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 as 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 the permit application(s) pursuant to paragraph (d)(5) is deemed complete with the South Coast AQMD.
- (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 operation and the storage, handling, or transfer of any chromium alloy-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 designated 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
 - (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 before January 1, 2022, an owner or operator of a chromium alloy melting facility shall submit the following South Coast AQMD permit applications to the Executive Officer:

- (d) (5) (A) An application for a change in permit conditions for permitted chromium alloy melting furnaces and emission control devices to reconcile their permit(s) with the requirements of this rule;
- (B) A permit application for chromium alloy melting furnaces and emission control devices installed before January 8, 2021 that previously did not require a written permit pursuant to Rule 219 – Equipment Not Requiring a Written Permit Pursuant to Regulation II; and
- (C) A permit application to construct new or modify emission control devices for chromium alloy melting furnaces installed before January 8, 2021.

- (e) Prohibitions
 - (1) An owner or operator of a chromium alloy melting facility shall not melt chromium non-ferrous alloys which have more than:
 - (A) 0.002 percent arsenic by weight; or
 - (B) 0.004 percent cadmium by weight.
 - (2) 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 or downward direction.
 - (3) On and after January 1, 2022, 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.

- (f) Housekeeping Requirements
 - (1) On and after July 1, 2021, an owner or operator of a chromium alloy melting facility shall:
 - (A) Store in closed leak-proof containers, unless being stored within a building at least 20 feet away from any building opening, chromium alloy-containing materials generated as a result of a chromium alloy melting operation that can form any amount of fugitive metal dust emissions including, but not limited to, slag, dross, ash, trash, debris, used casting material, and rerun scrap, and any waste generated from the housekeeping requirements of this subdivision, construction activities of subdivision (g), or any maintenance and repair activity. Chromium alloy-containing material that has been prepared for delivery to a customer is excluded from this requirement;

- (f) (1) (B) Store scrap in an enclosed storage area or in a building at least 20 feet away from any building opening;
- (C) Transport in closed leak-proof containers, unless being transported within a building, chromium alloy-containing materials generated as a result of a chromium alloy melting operation that can form any amount of fugitive metal dust emissions including, but not limited to, slag, dross, ash, trash, debris, used casting material, and rerun scrap, and any waste generated from the housekeeping requirements of this subdivision, construction activities of subdivision (g), or any maintenance and repair activity. Chromium alloy-containing material that has been prepared for delivery to a customer is excluded from this requirement;
- (D) Keep containers with chromium alloy-containing materials pursuant to subparagraphs (f)(1)(A) and (f)(1)(C) closed at all times, except when material is actively deposited into or actively removed from the container;
- (E) Keep containers with chromium alloy-containing materials pursuant to subparagraphs (f)(1)(A) and (f)(1)(C) free of liquid and dust leaks;
- (F) Collect material(s) captured by an emission control device into sealed leak-proof containers to prevent any fugitive metal dust emissions, except when material(s) are actively removed from the container or being prepared for disposal;
- (G) Enclose all filter media of emission control devices associated with chromium alloy melting operations at all times except for unused filter media;
- (H) 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;
- (I) Conduct weekly cleaning, using an approved cleaning method, of all floor areas within 20 feet of:
 - (i) Placement or storage of chromium alloy-containing materials, including, but not limited to, ingots, scrap, 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);

- (f) (1) (I) (iii) Operation of equipment for handling, mixing, reclaiming, or storing casting material;
- (f) (1) (I) (iv) Storage, disposal, recovery, or recycling of waste generated from used casting material, housekeeping requirements of this subdivision, construction activities for subdivision (g), and any maintenance and repair activities, and material(s) captured by an emission control device; and
- (f) (1) (I) (v) Any entrance or exit point of a building that houses chromium alloy melting operation(s) and an enclosed storage area;
- (J) Conduct quarterly inspection of vents, openings, and ducting of each chromium alloy melting operation emission control device for blockage from accumulated dust and clean blockages from accumulated dust using an approved cleaning method;
- (K) Conduct cleaning, at least once every six months, using an approved cleaning method, of all floor areas outside of the building that are subject to foot or vehicle traffic;
- (L) Conduct cleaning, at least once every 12 months, using an approved cleaning method, of the entire facility, including any area not specified in subparagraphs (f)(1)(H) through (f)(1)(K), excluding all roof areas;
- (M) Conduct cleaning, at least once every 24 months, during the months of June through September, using an approved cleaning method, of all roof areas of the building(s) housing chromium alloy melting operation(s); and
- (N) Within one hour of the conclusion 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 and repair activity occurred.
- (2) On and after July 1, 2021, 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 and any area specified in subparagraph (f)(1)(I).
- (3) For the housekeeping requirements specified in subparagraphs (f)(1)(H) through (f)(1)(N), 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 that meets the same air quality objective and effectiveness of the

housekeeping requirement it is replacing. The owner or operator shall submit the request for an alternative housekeeping measure to Rule1407.1@aqmd.gov.

- (f) (3) (A) Approved alternative housekeeping measures may not be used retroactively from the date of their approval.
 - (B) Compliance with the approved alternative housekeeping measures shall constitute compliance with the applicable provisions of subparagraphs (f)(1)(H) through (f)(1)(N).
- (g) Building Requirements
- (1) On and after July 1, 2021, an owner or operator of a chromium alloy melting facility shall conduct all chromium alloy melting operations in a building.
 - (2) On and after January 1, 2022, if the building contains building 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 building 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 if used 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 to prevent fugitive metal dust emissions from escaping a building.
 - (3) On or after January 1, 2022, within 48 hours of discovery of an unintended or accidental breach in a building that results in air passing through any space where chromium alloy melting operations occur, the owner or operator of a chromium alloy melting facility shall notify the Executive Officer and repair the breach within 72 hours of discovery of the breach. If repair of the breach exceeds 72 hours, the owner or operator shall notify the Executive Officer with the estimated time to repair the breach. The owner or operator shall make such notifications to 1-800-CUT-SMOG.

- (g) (4) On and after January 1, 2022, an owner or operator of a chromium alloy melting facility shall close all building openings in the roof that are located 15 feet or less above the edge of a chromium alloy melting furnace and where molten metal is poured and cooled, except during the passage of equipment or parts.
 - (5) On or after January 1, 2022, within 48 hours of discovery of an unintended or accidental breach in a roof that is located 15 feet or less above the edge of a chromium alloy melting furnace and where molten metal is poured and cooled, the owner or operator of a chromium alloy melting facility shall notify the Executive Officer and repair the breach within 72 hours of discovery of the breach. If repair of the breach exceeds 72 hours, the owner or operator shall notify the Executive Officer with the estimated time to repair the breach. The owner or operator shall make such notifications to 1-800-CUT-SMOG.
 - (6) If implementation of the building requirements specified in paragraph (g)(2) or (g)(4) cannot be complied with due to conflicting requirements set forth by the United States Department of Labor Occupational Safety and Health Administration (OSHA), the California Division of Occupational Safety and Health (Cal/OSHA), or other municipal codes or agency requirements directly related to worker safety, an owner or operator of a chromium alloy melting facility may use an alternative building compliance measure that has been approved, in writing, by the Executive Officer that meets the same air quality objective and effectiveness of the building compliance requirement it is replacing. The owner or operator shall submit the request for an alternative building compliance measure to Rule1407.1@aqmd.gov.
 - (A) An owner or operator of a chromium alloy melting facility shall implement the approved alternative building compliance measures, no later than 90 days after receiving notification of approval.
 - (B) Approved alternative building compliance measures may not be used retroactively from the date of approval.
 - (C) Compliance with the approved alternative building compliance measures shall constitute compliance with the applicable provisions of paragraphs (g)(2) and (g)(4).
- (h) Source Testing Requirements
- (1) An owner or operator of a chromium alloy melting facility shall submit to the Executive Officer for approval a source test protocol. Unless otherwise approved in writing by the Executive Officer, the source test protocol shall be submitted:

- (h) (1) (A) No later than 90 days prior to the source tests required pursuant to subparagraphs (h)(4)(A), (h)(4)(D), and (h)(4)(E);
- (B) Within 90 days after the Permit to Construct is issued for new or modified chromium alloy melting furnaces and/or associated emission control devices installed or modified on or after January 8, 2021; and
- (C) Within 90 days after the Permit to Construct or Permit to Operate is issued for a change in stack or centroid of stack emission point location or increase in chromium alloy processing throughput pursuant to clause (d)(1)(C)(i).
- (2) The source test protocols required pursuant to paragraph (h)(1) shall include the following:
 - (A) Source test criteria, all assumptions, and required data;
 - (B) Calculated target hexavalent chromium emissions in milligrams per hour;
 - (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(s); and
 - (E) Information on equipment, logistics, personnel, and other resources necessary to conduct an efficient and coordinated source test.
- (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 (h)(4).
 - (A) 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 the scheduled source test date, except for changes in the source test date due to inclement weather or unforeseen circumstances beyond the control of the owner or operator. The owner or operator shall report a change in the source test date due to inclement weather or unforeseen circumstances as soon as feasible and before the start of the scheduled source test.
 - (B) The owner or operator of a chromium alloy melting facility shall reschedule the source test date so that the Executive Officer is notified of the rescheduled source test, in writing, at least seven days prior to conducting the rescheduled source test.

- (h) (4) 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 applicable aggregate hexavalent chromium emission limit pursuant to paragraph (d)(1), smoke test pursuant to paragraph (j)(3), and the capture velocity or face velocity of each intake of the emission collection system pursuant to paragraph (j)(4):
- (A) An initial source test, on or before July 1, 2024, for chromium alloy melting furnaces and/or associated emission control devices permitted before January 8, 2021;
 - (B) An initial source test pursuant to subparagraph (h)(1)(B), no later than 120 days after the approval of the source test protocol or within 120 days after construction is completed, whichever is later, for new or modified chromium alloy melting furnaces and/or associated emission control devices installed or modified on or after January 8, 2021;
 - (C) An initial source test pursuant to subparagraph (h)(1)(C), no later than 120 days after the approval of the source test protocol or within 120 days after construction is completed, whichever is later, for a change in stack or centroid of stack emission point location or increase in chromium alloy processing throughput pursuant to clause (d)(1)(C)(i);
 - (D) Periodic source tests, within 60 months after the most recent source test, and once every 60 months thereafter; and
 - (E) A source test, within six months, if an owner or operator of a chromium alloy melting facility:
 - (i) Does not conduct any parameter monitoring requirement by the effective date, at the required frequency, or with a monitoring device that is calibrated and in proper working condition as specified in subdivision (j);
 - (ii) Does not cease operation of furnace(s) associated with the emission control device(s) or emission collection system(s) within 24 hours after discovery of failure and until the emission control device(s) or emission collection system(s) passes the required parameter monitoring as required by paragraph (j)(6); or
 - (iii) Fails any one parameter monitoring requirement pursuant to subparagraphs (j)(6)(A) through (j)(6)(E) three consecutive times.

- (h) (5) 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), failed the smoke test pursuant to paragraph (j)(3), or does not maintain the velocity of the emission collection system specified in paragraph (j)(4). The owner or operator of a chromium alloy melting facility shall make such notifications to 1-800-CUT-SMOG and shall follow up in writing to the Executive Officer with a copy of the result(s) of the source test(s) within 10 calendar days of notification.
- (6) 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 shall 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 eight 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 may 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 compound.
- (7) 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.
- (8) 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.

- (h) (9) An existing source test conducted on or after January 1, 2018 for a chromium alloy melting furnace or associated emission control device existing before January 8, 2021 may be used as the initial source test specified in subparagraph (h)(4)(A) 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 January 1, 2018;
 - (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 paragraphs (j)(3) and (j)(4);
 - (D) The source test was conducted using applicable and approved test methods and test laboratories specified in paragraphs (h)(6) through (h)(8); and
 - (E) 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 (h) to the South Coast AQMD within 90 days of completion of the source testing.
- (i) Material Testing Requirements
 - (1) Using the test method(s) identified in paragraph (i)(2), an owner or operator of a chromium alloy melting facility shall conduct material testing, for each furnace charge, to determine the weight average percentages of arsenic and cadmium contained in materials melted in chromium non-ferrous alloy melting furnaces, excluding rerun scrap. In lieu of material testing pursuant to paragraph (i)(2), the owner or operator may use documentation confirming the weight average percentages of arsenic and cadmium including, but not limited to, metallurgical assays, certificates of analysis, and material specification sheets.
 - (2) 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); or

- (i) (2) (C) Alternative method(s) approved, in writing, by the Executive Officer.

- (j) Parameter Monitoring Requirements
 - (1) Bag Leak Detection System

On and after July 1, 2024, 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 this rule, regardless of size and position within a series of emission control devices, pursuant to the Tier 3 requirements of Rule 1155 – Particulate Matter (PM) Control Devices.
 - (2) Pressure Across the Filter Media

On and after July 1, 2024, 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) 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 12 months;
 - (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 for each calendar day saved in Microsoft Excel (xls or xlsx) 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; and
 - (vi) Is positioned so that it is easily visible and in clear sight; and
 - (C) 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.
 - (3) For each emission collection system, an owner or operator of a chromium alloy melting facility shall conduct and pass a smoke test during each source test pursuant

to paragraph (h)(4), and additionally once every 180 days after the initial source test pursuant to subparagraph (h)(4)(A) through (h)(4)(C), using the procedure set forth in Attachment A – Smoke Test to Demonstrate Capture Efficiency for Emission Collection Systems of an Emission Control Device in this rule.

- (j) (4) On or before July 1, 2024, and once 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 capture velocity or 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 95 percent or greater of the minimum velocity that verifies 100 percent collection efficiency according to conditions of the Permit to Operate.
 - (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 95 percent or greater of the minimum slot velocity that verifies 100 percent collection efficiency according to conditions of the Permit to Operate.
 - (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 any cross-drafts or maintain 95 percent or greater of the minimum velocity that verifies 100 percent collection efficiency according to conditions of the Permit to Operate.
- (5) Within 24 hours of discovery, an owner or operator of a chromium alloy melting facility shall report to 1-800-CUT-SMOG any of the following:
 - (A) The cumulative number of hours of BLDS alarm activation pursuant to paragraph (j)(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 filter stage of the emission control device that has not been maintained at the range specified in subparagraph (j)(2)(C) as

determined by hourly or more frequent recordings by the DAS for the averaging periods below:

- (j) (5) (B) (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 (j)(2)(B)(iii) and/or (j)(2)(B)(iv);
 - (D) A smoke test pursuant to paragraph (j)(3) that has failed; and
 - (E) An anemometer reading indicating that the required velocity in paragraph (j)(4) has not been maintained.
- (6) Starting no later than 24 hours after discovery of failure and until the emission control device(s) or emission collection system(s) passes the required parameter monitoring pursuant to paragraphs (j)(1) through (j)(4), an owner or operator of a chromium alloy melting facility shall not use the associated furnace(s) for production if the owner or operator fails any of the following:
- (A) To minimize the BLDS alarm activation pursuant to paragraph (j)(1) and Rule 1155;
 - (B) To maintain the average pressure pursuant to subparagraph (j)(2)(C);
 - (C) To record or generate the data output from the gauge using a DAS pursuant to clauses (j)(2)(B)(iii) and/or (j)(2)(B)(iv);
 - (D) To conduct a passing smoke test pursuant to paragraph (j)(3); and
 - (E) To maintain the velocity pursuant to paragraph (j)(4).
- (7) In the case of a failure of a DAS pursuant to clauses (j)(2)(B)(iii) and/or (j)(2)(B)(iv) to record and/or generate the data output of the gauge due to an emergency 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; and
 - (B) Manually record the data output from the gauge associated with the non-operational DAS, or if the gauge associated with the non-operational DAS is not operating due to the emergency, the pressure as measured by a mechanical gauge, at least once every eight hours until the DAS is restored.
- The period of missing DAS data due to the emergency shall not be used to determine compliance with clauses (j)(2)(B)(iii) and/or (j)(2)(B)(iv).

(j) (8) Unreasonable Risk

If the parameter monitoring requirements specified in paragraphs (j)(3) or (j)(4) cannot be conducted due to an unreasonable risk to safety, an owner or operator of a chromium alloy melting facility shall use an alternative parameter monitoring measure that has been approved by the Executive Officer in a source test protocol pursuant to paragraph (h)(2). If there is no safe alternative parameter monitoring measure, as evaluated by the Executive Officer, the owner or operator of a chromium alloy melting facility is no longer subject to the applicable parameter monitoring requirement.

(A) Approved alternative parameter monitoring measures may not be used retroactively from the date of approval.

(B) Compliance with the approved alternative parameter monitoring measures shall constitute compliance with the applicable provisions of paragraph (j)(3) or (j)(4).

(k) 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, and rerun scrap and any purchase records, if applicable, to verify these quantities melted per year;
- (2) Material testing data as required by subdivision (i), including description of each material tested, quantity of material processed, test method(s) used, method detection and reporting limits, quality assurance, quality control, and calibration data, and arsenic and cadmium percent by weight for each material tested;
- (3) Source test protocols and reports as required by subdivision (h);
- (4) Housekeeping activities conducted as required by subdivision (f), including the name of the person conducting the activity and the dates and times at which specific activities were completed;
- (5) Documentation of construction and maintenance and repair activities conducted on any equipment or structures associated with chromium alloy melting operation(s) including, but not limited to, chromium alloy melting furnaces and associated emission collection systems and emission control devices; buildings housing chromium alloy melting operation(s); and enclosed storage areas housing chromium alloy melting materials;

- (k) (6) Documentation of repair activities conducted on unintended or accidental breaches to buildings and roofs and log of notifications to 1-800-CUT-SMOG as required by paragraphs (g)(3) and (g)(5);
- (7) Inspection, calibration documentation, and maintenance of emission control devices and parameter monitoring equipment as required by subdivision (j), including the name of the person conducting the activity and the dates and times at which specific activities were completed;
- (8) Cumulative number of hours of BLDS alarm activation pursuant to paragraph (j)(1) and Rule 1155;
- (9) DAS data files as required by clauses (j)(2)(B)(iii) and (j)(2)(B)(iv) and subparagraph (j)(7)(B);
- (10) Smoke test documentation as required by paragraph (j)(3) and pursuant to Attachment A – Smoke Test to Demonstrate Capture Efficiency for Emission Collection Systems of an Emission Control Device;
- (11) Anemometer data collected as required by paragraph (j)(4), including capture or face velocities, the name of the person conducting the measurement, and the dates and times at which the measurement was completed;
- (12) Call log of all reporting made to 1-800-CUT-SMOG as required by paragraph (j)(5), including date and time of call and reported parameter monitoring requirement(s); and
- (13) Documentation of any repairs or replacements that were performed in order to pass any parameter monitoring as required by paragraph (j)(6).

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

(l) 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 (k)(1).
- (2) Educational facilities, including, but not limited to, universities, colleges, and schools, that melt chromium alloy(s) for purposes of education, shall be exempt from the requirements of this rule.
- (3) Jewelers that melt chromium alloy(s) for purposes of jewelry making shall be exempt from the requirements of this rule.
- (4) 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.

- (l) (5) Brazing, dip soldering, and wave soldering operations shall be exempt from the requirements of this rule.
- (6) 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 any activities pursuant to subdivisions (f) and (g) that generate or have the potential to generate fugitive metal dust, are exempt from the requirements of this rule.

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. Mass emissions at the exhaust of an emission control device is related to capture efficiency at the inlet of the emission collection system. For this reason, total capture 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 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 building openings affecting draft conditions including, but not limited to, vents, windows, doorways, and bay doors, as well as the operation of other workstations 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 workstations equipped with collection slots or hoods, the smoke shall be released at points where emissions from chromium alloy 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.

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.