SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT

Preliminary Draft Staff Report
Proposed Rule 1426 – Emissions from Metal Finishing Operations

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Deputy Executive Officer
Planning, Rule Development and Area Sources
Philip M. Fine, Ph.D.

Assistant Deputy Executive Officer
Planning, Rule Development and Area Sources
Susan Nakamura

Planning and Rules Manager
Planning, Rule Development and Area Sources
Jillian Wong, Ph.D.

Author:	Min Sue – Air Quality Specialist
Contributors:	John Anderson – Air Quality Analysis and Compliance Supervisor Jason Aspell – Assistant Deputy Executive Officer Fortune Chen – Senior Air Quality Engineer Shah Dabirian – Program Supervisor Mitch Haimov – Senior Air Quality Engineering Manager Sinae Kim – Senior Air Quality Engineer Alisha Lewis – Air Quality Inspector David Lui – Senior Air Quality Engineer Kevin Ni – Air Quality Specialist Barbara Radlein – Program Supervisor Amanda Sanders – Air Quality Analysis and Compliance Supervisor Laura Saucedo – Principal Air Quality Chemistry Areio Soltani – Supervising Air Quality Inspector Brian Vlasich – Air Quality Specialist
Reviewed by:	Neil Fujiwara – Program Supervisor William Wong – Principal Deputy District Counsel

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WAYNE NASTRI

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INTRODUCTION

Rule 1426 – Emissions from Metal Finishing Operations was adopted in 2003. This rule along with Rule 1469 – Hexavalent Chromium Emissions from Chromium Electroplating and Chromic Acid Operations are the two key South Coast Air Quality Management District (South Coast AQMD) rules that regulate plating and anodizing metal finishing operations, which are processes that prepare or treat the surface of parts by submerging them into tanks. The solutions in these tank often contain a metal that is classified as a Toxic Air Contaminant (TAC). Rule 1426 regulates five of these metal TACs that include hexavalent chromium, nickel, cadmium, lead, and copper whereas, Rule 1469 regulates hexavalent chromium from only a subset of the Rule 1426 facilities.

In 2015, South Coast AQMD staff initiated rule development to amend both Rule 1426 and Rule 1469. During the rule development process, Rule 1426 was separated from the Rule 1469 with a commitment to resume the development of Rule 1426 at a later date.

Rule 1426 currently applies to facilities that perform chromium, nickel, cadmium, lead or copper electroplating, or chromic acid anodizing. Rule 1426 has basic housekeeping measures and a prohibition on the air sparging of tanks containing chromic acid (i.e., hexavalent chromium). The rule also includes a one-time data collection requirement for the 2003 calendar year followed by a 2004 calendar year update if there were any changes from the 2003 report. This information was intended to be used to assess the need to amended Rule 1426 for additional emission controls. Rule 1426 required facilities to submit facility operation and equipment information. This included:

- Facility name and contact information
- Process descriptions
- Purchase records for nickel, cadmium, lead and copper
- Nickel,cadmium, lead, and copper electroplating tank information
    - dimension, volume, and metal concentrations
    - Control equipment information and test results
    - Amp-hr records for at least 4 months
    - Associate acid tank information (excluding rinse and dragout tanks)
- Sodium hydroxide spraying information
- Sensitive receptor distance

Currently Rule 1426 lacks the building enclosure requirements, enhanced housekeeping requirements, and best management practices included in the 2018 amendments to Rule 1469 and other recently amended or adopted metal TAC rules needed to address fugitive metal TAC emissions. Rule 1426 also does not specify emission limits nor does it include requirements for add-on air pollution controls like those provisions included in Rule 1469 to address the emissions from the heated and air sparged non-rectified hexavalent chromium tanks.

Rule 1426 needs to be amended to incorporate building enclosure requirements, enhanced housekeeping requirements, and best management practices in order to minimize metal TAC emissions from chromium, nickel, cadmium, or lead metal finishing tanks. Proposed Amended Rule 1426 (PAR 1426) is designed to minimize fugitive emissions from the tank solutions that contain hexavalent chromium, nickel, cadmium, or lead. Point source metal TAC emissions would be addressed through separate rulemaking efforts. Proposed Rule 1426.1 would address point

source emissions of hexavalent chromium at facilities not subject to Rule 1469. Other point source emissions of metal TAC would be addressed through future rulemaking efforts as needed as Proposed Rule 1426.X.

INDUSTRY CHARACTERIZATION

Metal finishing is the surface treatment of a metal substrate to give it a desired characteristic. This can include anti-corrosion, durability, and adhesion. Due to the beneficial properties that can be imparted to products, metal finishing support many industries including fixtures (home, kitchen, and bath), machinery and industrial equipment, and commercial and military aerospace. In the South Coast AQMD basin alone, facilities span over 90 different classifications under the North American Industry Classification System (NAICS) standard used by Federal statistical agencies in classifying business establishments for the purpose of collecting, analyzing, and publishing statistical data related to the U.S. business economy codes. This illustrates the diverse industries that use metal finishing with tank solutions. Most metal finishing involve the use of metal TACs, hexavalent chromium, nickel, cadmium, lead, or copper, which are in tank solutions.

Rule 1426 originally applied to an industry that performed chromium, nickel, cadmium, lead or copper electroplating operations, or chromic acid anodizing. PAR 1426 expands the applicability to include other facilities using tanks containing hexavalent chromium, nickel, cadmium or lead that are not electroplating (i.e., non-electrolytic). Non-electrolytic tanks include sealing, passivation, or strip tanks. Both operations of electrolytic and non-electrolytic tanks can be classified as metal finishing.

HEALTH EFFECTS OF METAL TOXIC AIR CONTAMINANTS

A substance is considered toxic if it has the potential to cause adverse health effects in people. A toxic substance released to the air is considered a TAC or "toxic air contaminant". A TAC is defined as an "air pollutant which may cause or contribute to an increase in mortality or an increase in serious illness, or which may pose a present or potential hazard to human health" (Health and Safety Code Section 39655(a)). TACs are identified by state and federal agencies based on a review of available scientific evidence. In California, the Office of Environmental Health Hazard Assessment (OEHHA) is responsible for the scientific evaluation and determination of the health values for TACs that guide regulatory actions, including those of South Coast AQMD. South Coast AQMD Rule 1401 – New Source Review of Toxic Air Contaminants lists these TACs on Table 1 – Toxic Air Contaminants. Metal finishing operations that use tanks to prepare or treat the surface of parts use solutions that contain metals or metal compounds that are TACs. Rule 1426 regulates the following metal TACs used in metal finishing: hexavalent chromium, nickel, cadmium, lead, and copper.

Table 1 below summarizes the unit risk factor, chronic and acute reference exposure levels and multipathway values, if applicable, for hexavalent chromium, nickel, cadmium, lead, and copper, based on data from OEHHA. These health values are used to estimate risks to individuals such as workers and residents for health risk assessments purposes.

Table 1 - Toxicity of Metals

Toxic Air Contaminant	Inhalation Cancer Potency Factor[1] $(mg/kg\text{-}d)^{-1}$	Multipathway[2] (Residential Cancer)	REL[1] (Chronic) $(\mu g/m^3)^{-1}$	Multipathway[2] (Residential Non-cancer Chronic)	REL[1] (Acute) $(\mu g/m^3)^{-1}$
Hexavalent Chromium	5.1E+02	1.60	2.00E-01	2.44	
Nickel and Compounds	9.1E-01		1.4E-02		2.00E-01
Cadmium and Compounds	1.5E+01		2.00E-02	1.98	
Lead and Compounds	4.2E-02	11.41			
Copper and Compounds					1.00E+02

Hexavalent Chromium

Hexavalent chromium[3] is one of the most potent carcinogens. Hexavalent chromium is a multipathway toxic air contaminant, meaning there are multiple exposure pathways for a person to be exposed, such as inhalation and ingestion. Inhalation of hexavalent chromium can cause both cancer and non-cancer health effects. Inhalation of hexavalent chromium over a long period of time increases the risk of lung cancer and nasal cancer. The non-cancer effects of being exposed to hexavalent chromium at high levels over time can cause or worsen health conditions such as irritation of the nose, throat and lungs; allergic symptoms (wheezing, shortness of breath); and nasal sores and perforation of the membrane separating the nostrils.

Nickel

Nickel[4] is a carcinogen and also results in non-cancer chronic effects, affecting the respiratory and hematologic or blood system, and non-cancer acute effects, affecting the immune system.

Cadmium

Cadmium[5] is a carcinogen and also results in non-cancer chronic effects, affecting the kidneys and respiratory system. Additionally, exposure to cadmium can result in developmental toxicity.

[1] California Air Resources Board. *Consolidated Table of OEHHA/ARB Approved Risk Assessment Health Values*. (2020, October 2). https://ww2.arb.ca.gov/sites/default/files/classic//toxics/healthval/contable.pdf

[2] South Coast AQMD. *SCAQMD Permit Application Package N*. (2017, August 7). Available online at https://www.aqmd.gov/docs/default-source/rule-book/Proposed-Rules/1401/attachmentn_080717.pdf.

[3] Office of Environmental Health and Hazard Assessment. *Health Effects of Hexavalent Chromium*. Retrieved January 14, 2021 from https://oehha.ca.gov/air/health-effects-hexavalent-chromium.

[4] Office of Environmental Health and Hazard Assessment. *Nickel and Nickel Compounds*. Retrieved January 14, 2021 from https://oehha.ca.gov/chemicals/nickel-and-nickel-compounds.

[5] Office of Environmental Health and Hazard Assessment. *Cadmium*. Retrieved January 14, 2021 from https://oehha.ca.gov/chemicals/cadmium.

Lead

Lead is a carcinogen and a multipathway toxic air contaminant. Lead[6] has non-cancer chronic health effects including nervous and reproductive system disorders, neurological and respiratory damage, cognitive and behavioral changes, and hypertension. Young children are especially susceptible to the effects of environmental lead because their bodies accumulate lead more readily than do those of adults, and because they are more vulnerable to certain biological effects of lead including learning disabilities, behavioral problems, and deficits in IQ.

Copper

Copper[7] health effects are primarily due to acute exposure for non-cancer and are 500 times less than that of nickel. Copper exposure can result in non-cancer acute effects, affecting the respiratory system. For PAR 1426, requirements for copper electroplating tanks will no longer be included due to the relatively low health risk as a metal toxic air contaminant for acute exposure.

FINDINGS FROM OTHER TOXIC METAL TAC RULE DEVELOPMENTS

South Coast AQMD has developed other rules to address point and fugitive emissions metal TACs from various industries and operations. This includes metal grinding at forging facilities (Rule 1430 – Control of Emissions from Metal Grinding Operations at Metal Forging Facilities), metal melting for lead (Rule 1420 – Emission Standard for Lead, Rule 1420.1 – Emission Standards for Lead and Other Toxic Air Contaminants from Large Lead-Acid Battery Recycling Facilities, and Rule 1420.2 – Emission Standards for Lead from Metal Melting Facilities) , metal melting of non-chromium metals (Rule 1407 – Control of Emissions of Arsenic, Cadmium, and Nickel from Non-Ferrous Metal Melting Operations), and chromium electroplating and chromic acid anodizing facilities (Rule 1469). Through each of these rule developments, staff identified practices and methods to minimize and contain fugitive emissions from being re-entrained into the ambient air that generally included housekeeping provisions to clean fugitive dust, building enclosures to containment of fugitive metal dust, and best management practices to minimize the generation of fugitive metal dust.

In addition, during the investigation process of ambient monitoring near metal processing facilities, ambient monitoring results demonstrated metal TAC emissions were being emitted from the facility. After the implementation of methods and practices to control fugitive and point source emissions, ambient monitoring results demonstrated a decrease in metal TAC concentrations. Point source emissions controls can include the installation, repair, or upgrading of an add-on air pollution control system. Practices and methods to control fugitive emissions are grouped into three key categories: housekeeping requirements, building enclosure requirements, and best management practices. These categories were incorporated into PAR 1426 as rule requirements.

[6] Office of Environmental Health and Hazard Assessment. *Proposed Identification of Inorganic Lead as a Toxic Air Contaminant*. Retrieved January 14, 2021 from https://oehha.ca.gov/air/proposed-identification-inorganic-lead-toxic-air-contaminant.

[7] Office of Environmental Health and Hazard Assessment. *Copper and Copper Compounds*. Retrieved January 14, 2021 from https://oehha.ca.gov/air/chemicals/copper-and-copper-compounds.

Rule 1430

In 2012, the South Coast AQMD began receiving complaints from the public regarding a burning metallic odor and metal particulate in the City of Paramount[8]. Through ambient monitoring, air quality analysis and investigation of surrounding businesses a metal forging facility was identified as a source of these metallic odors, which arise primarily from their metal grinding operations. Staff conducted glass plate sampling at other metal forging facilities that demonstrated fugitive metal particulates were not exclusive to grinding operations at one metal forging facility. During the rule development process for Rule 1430, staff visited many metal forging facilities. The following were key findings from the site visits:

- Facilities were conducting metal grinding operations in the open air. Because of the fugitive nature of grinding operations, with no containment structure such as an enclosure and no air pollution control device, the metal particulates were being released in the open air and into the community.
- Pollution control equipment did not appear to have proper ventilation, operation, and maintenance. Evidence that there were issues with the existing pollution controls was that the metal particulates during the grinding operations were not moving towards the control equipment.
- Grinding operations conducted within structures that had large openings, for ingress and egress, with large vents and openings on the sides and top of the building did not adequately contain fugitive metal particulate.
- Housekeeping measures varied at each facility (e.g. cleaning method, frequency, areas cleaned).

Rule 1430 reduced metal particulate emissions from metal grinding and metal cutting operations at metal forging facilities to ensure that these operations have the appropriate pollution control equipment. Rule 1430 required that these operations are conducted within an enclosure to ensure fugitive emissions that did not make it to the control device are contained, and that housekeeping requirements are followed to ensure any accumulation of metal particulate in around grinding operations is not re-entrained into the air or tracked outside of the facility.

Rule 1420.1

Rule 1420.1 was adopted in November 2010 to address lead emissions from large lead-acid battery recycling facilities to ensure attainment of the National Ambient Air Quality Standard (standard) for lead. Prior to adoption, both large lead-acid battery recycling facilities were determined to be contributors to the exceedance of the federal lead standard. Violations issued to both of these facilities required additional housekeeping, process changes, and more stringent monitoring. Staff determined that fugitive lead-dust can accumulate in process areas, from lead point sources, on roof tops, in and around facility, and during maintenance operations. As such, Rule 1420.1 required a variety of housekeeping and containment strategies. The concept behind many of these strategies is to either contain or remove lead dust so it cannot become airborne. Housekeeping practices specifying adequate frequencies and locations for all cleanings to be performed are also critical in

[8] South Coast AQMD. (n.d.). *Carlton forge works.* Retrieved January 7, 2021, from https://www.aqmd.gov/home/news-events/community-investigations/air-monitoring-activities/facilities---order-for-abatement/carlton-forge-works

the effectiveness to control fugitive lead-dust emissions. The use of enclosures or containment materials ensured that the materials do not become fugitive.

Amendments to the Rule 1420.1 identified additional sources of fugitive emissions and required further housekeeping or best management practices.

Rule 1469

During the rule development for Rule 1469 which was amended in 2018, South Coast AQMD identified that the process of air sparging and heating of tanks with solutions containing chromic acid also generated hexavalent chromium emissions. Rule 1469 was amended to address these previously unknown sources of hexavalent chromium through point source controls. Additional requirements to control fugitive emissions included enhanced housekeeping and best management practices as well as new building enclosure requirements.

Investigations of several Rule 1469 facilities through ambient monitoring demonstrated the effectiveness of implementation of these control measures to control emissions, including fugitive emissions. Staff conducted ambient monitoring of hexavalent chromium near two chromic acid anodizing facilities located in two cities in the South Coast Air Basin: a facility in Newport Beach and a facility in Paramount, where hexavalent chromium levels were above background levels near those facilities. Ambient monitoring near the Rule 1469 facilities in Newport Beach and Paramount provided information about previously unknown sources of hexavalent chromium emissions. Ambient monitoring also showed that ambient levels of hexavalent chromium were reduced after the facilities implemented control measures for fugitive emissions and installed add-on controls.

Through the rule amendments to Rule 1469 in 2018, based on ambient monitoring, emissions testing, and other investigative activities it was determined that there were tanks that were not previously known that had significant hexavalent chromium emissions that needed pollution controls. Additionally, control measures to minimize fugitive emissions, while not quantifiable, were effective in reducing ambient levels of hexavalent chromium. As a result, Rule 1469 requires pollution controls on these tanks to address point source emissions whereas, fugitive emissions are addressed through building enclosure requirements, enhanced housekeeping, and best management practices.

REGULATORY HISTORY

Chrome plating and chromic anodizing operations are under Rule 1469 as well as state and federal regulations. Whenever the South Coast AQMD adopts or amends a rule, the requirements must be equal to or more stringent than the federal or state requirements. The recent amendments to Rule 1469 added more stringent requirements based on findings during the 2018 rule development.

U.S. EPA NESHAP

On June 12, 2008, the U.S. EPA issued 40 CFR Part 63 Subpart WWWWWW (6W)[9], the Plating and Polishing NESHAP for area sources. It addressed national air toxics standards for smaller-

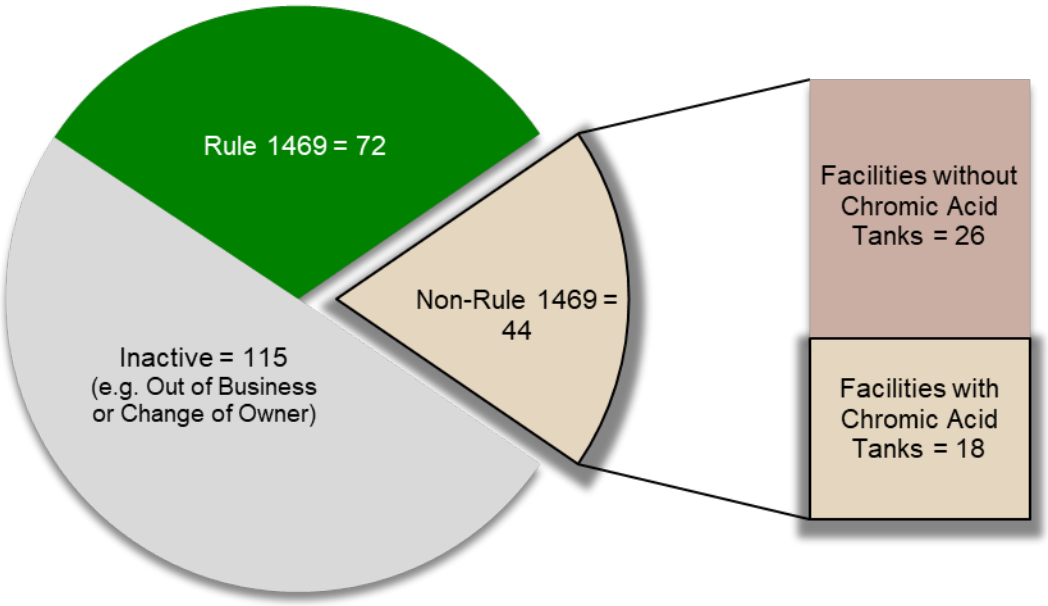
[9] United States Environmental Protection Agency. *Subpart WWWWWW—National Emission Standards for Hazardous Air Pollutants: Area Source Standards for Plating and Polishing Operations*. (2012). Retrieved 16 December 2020, from https://www.govinfo.gov/content/pkg/CFR-2015-title40-vol15/pdf/CFR-2015-title40-vol15-part63-subpartWWWWWW.pdf.

emitting sources, known as area sources, in the plating and polishing industry. The requirements apply to existing and new area sources in the plating and polishing rule. The rule affected existing and new plating and polishing facilities and applies to non-chromium electroplating; electroforming; electropolishing; electroless plating or other non-electrolytic metal coating operations, such as chromate conversion coating, nickel acetate sealing, sodium dichromate sealing, and manganese phosphate coating; dry mechanical polishing operations, and thermal spraying operations that use or emit compounds of one or more of the following metal toxic air pollutants: cadmium, chromium, lead, manganese, and nickel with operations containing at least 1,000 ppm of chromium, cadmium, lead, nickel or at least 10,000 ppm of manganese. It includes management practices such as use of wetting agent/fume suppressants, use of tank covers or control devices, and capture and control of emissions from thermal spraying and dry mechanical polishing. Also included were management practices that were to be implemented as practicable by the facilities.

Rule 1426

On May 2, 2003, Rule 1426 was adopted to address the emissions from non-Rule 1469 tanks and facilities. Basic housekeeping and recordkeeping requirements were required as well as limited air sparging restrictions on tanks that contain chromic acid. Staff initiated amendments to Rule 1426 during rulemaking for amendments Rule 1469 in 2008 and 2018, but were suspended to allow staff to focus on Rule 1469 amendments. At the time of adoption, the approach was to collect additional information about facilities with Rule 1426 tanks, and use that information to establish additional requirements. Requirements for data gathering included the submittal of a 2003 Initial Compliance Report and 2004 Compliance Reports. For the Initial Compliance Reports, 231 facilities submitted an Initial Compliance Report of which only 116 facilities are still active with 72 subject to Rule 1469. Of the remaining 44 facilities, 18 facilities had a total of 44 tanks that contained chromic acid that were unregulated because the tanks were not located at facilities subject to Rule 1469 as presented in Figure 1. In addition to these unregulated chromic acid tanks, there are many nickel, cadmium, and lead electroplating tanks that are operating without point source controls and without requirements to reduce fugitive emissions.

Figure 1 - Number of Facilities from 2003 Year Initial Compliance Reports



AFFECTED RULE 1426 FACILITIES

There are approximately 350 facilities expected to be impacted by PAR 1426. Table 2 provides the number of facilities by North American Industry Classification System (NAICS) code. The facilities conducting metal finishing using process tanks containing metal TACs are generally classified under the following two digit NAICS codes:

- 56XXXX - Administrative and Support and Waste Management and Remediation Services
- 23XXXX - Construction
- 62XXXX - Health Care and Social Assistance
- 51XXXX - Information
- 31XXXX, 32XXXX, 33XXXX - Manufacturing
- 81XXXX - Other Services (except Public Administration)
- 54XXXX - Professional, Scientific and Technical Services
- 44XXXX - Retail Trade
- 49XXXX - Transportation and Warehousing
- 42XXXX - Wholesale Trade

Table 2 - Facility Categories

	Facility Type	Number of Facilities
236115	New Single-Family Housing Construction (except For-Sale Builders)	1
238990	All Other Specialty Trade Contractors	1
311942	Spice and Extract Manufacturing	1
313310	Textile and Fabric Finishing Mills	1
313320	Fabric Coating Mills	1
323113	Commercial Screen Printing	1
323120	Support Activities for Printing	2
324191	Petroleum Lubricating Oil and Grease Manufacturing	1
325110	Petrochemical Manufacturing	1
325180	Other Basic Inorganic Chemical Manufacturing	1
325510	Paint and Coating Manufacturing	1
326113	Unlaminated Plastics Film and Sheet (except Packaging) Manufacturing	1
331315	Aluminum Sheet, Plate, and Foil Manufacturing	2
331318	Other Aluminum Rolling, Drawing, and Extruding	2
331420	Copper Rolling, Drawing, Extruding, and Alloying	1
331491	Nonferrous Metal (except Copper and Aluminum) Rolling, Drawing, and Extruding	1
331524	Aluminum Foundries (except Die-Casting)	3
331529	Other Nonferrous Metal Foundries (except Die-Casting)	1
332119	Metal Crown, Closure, and Other Metal Stamping (except Automotive)	1
332216	Saw Blade and Handtool Manufacturing	1
332312	Fabricated Structural Metal Manufacturing	1
332322	Sheet Metal Work Manufacturing	1
332439	Other Metal Container Manufacturing	1
332510	Hardware Manufacturing	1
332710	Machine Shops	5
332721	Precision Turned Product Manufacturing	1
332722	Bolt, Nut, Screw, Rivet, and Washer Manufacturing	12
332811	Metal Heat Treating	3
332812	Metal Coating, Engraving (except Jewelry and Silverware), and Allied Services to Manufacturers	9
332813	Electroplating, Plating, Polishing, Anodizing, and Coloring	158
332912	Fluid Power Valve and Hose Fitting Manufacturing	1
332913	Plumbing Fixture Fitting and Trim Manufacturing	4
332991	Ball and Roller Bearing Manufacturing	1
332996	Fabricated Pipe and Pipe Fitting Manufacturing	1
332999	All Other Miscellaneous Fabricated Metal Product Manufacturing	1
333249	Other Industrial Machinery Manufacturing	3
333314	Optical Instrument and Lens Manufacturing	2
333413	Industrial and Commercial Fan and Blower and Air Purification Equipment Manufacturing	1
333514	Special Die and Tool, Die Set, Jig, and Fixture Manufacturing	1
333515	Cutting Tool and Machine Tool Accessory Manufacturing	1

	Facility Type	Number of Facilities
333613	Mechanical Power Transmission Equipment Manufacturing	1
333999	All Other Miscellaneous General Purpose Machinery Manufacturing	1
334220	Radio and Television Broadcasting and Wireless Communications Equipment Manufacturing	1
334412	Bare Printed Circuit Board Manufacturing	1
334416	Capacitor, Resistor, Coil, Transformer, and Other Inductor Manufacturing	1
334417	Electronic Connector Manufacturing	1
334418	Printed Circuit Assembly (Electronic Assembly) Manufacturing	24
334419	Other Electronic Component Manufacturing	9
334510	Electromedical and Electrotherapeutic Apparatus Manufacturing	2
334511	Search, Detection, Navigation, Guidance, Aeronautical, and Nautical System and Instrument Manufacturing	1
334519	Other Measuring and Controlling Device Manufacturing	1
335129	Other Lighting Equipment Manufacturing	1
335312	Motor and Generator Manufacturing	1
335314	Relay and Industrial Control Manufacturing	2
335931	Current-Carrying Wiring Device Manufacturing	2
335999	All Other Miscellaneous Electrical Equipment and Component Manufacturing	1
336310	Motor Vehicle Gasoline Engine and Engine Parts Manufacturing	1
336390	Other Motor Vehicle Parts Manufacturing	1
336411	Aircraft Manufacturing	2
336412	Aircraft Engine and Engine Parts Manufacturing	2
336413	Other Aircraft Parts and Auxiliary Equipment Manufacturing	11
336414	Guided Missile and Space Vehicle Manufacturing	1
336419	Other Guided Missile and Space Vehicle Parts and Auxiliary Equipment Manufacturing	1
337920	Blind and Shade Manufacturing	1
339114	Dental Equipment and Supplies Manufacturing	1
339910	Jewelry and Silverware Manufacturing	1
423510	Metal Service Centers and Other Metal Merchant Wholesalers	2
423830	Industrial Machinery and Equipment Merchant Wholesalers	1
423860	Transportation Equipment and Supplies (except Motor Vehicle) Merchant Wholesalers	1
423930	Recyclable Material Merchant Wholesalers	1
423940	Jewelry, Watch, Precious Stone, and Precious Metal Merchant Wholesalers	1
424990	Other Miscellaneous Nondurable Goods Merchant Wholesalers	1
441228	Motorcycle, ATV, and All Other Motor Vehicle Dealers	1
441310	Automotive Parts and Accessories Stores	1
443142	Electronics Stores	1
493110	General Warehousing and Storage	1
511130	Book Publishers	1
541330	Engineering Services	1
541380	Testing Laboratories	4
541990	All Other Professional, Scientific, and Technical Services	3
561499	All Other Business Support Services	4

	Facility Type	Number of Facilities
561990	All Other Support Services	3
621999	All Other Miscellaneous Ambulatory Health Care Services	1
811111	General Automotive Repair	1
811118	Other Automotive Mechanical and Electrical Repair and Maintenance	1
811121	Automotive Body, Paint, and Interior Repair and Maintenance	2
811219	Other Electronic and Precision Equipment Repair and Maintenance	1
811310	Commercial and Industrial Machinery and Equipment (except Automotive and Electronic) Repair and Maintenance	2
811490	Other Personal and Household Goods Repair and Maintenance	1
812210	Funeral Homes and Funeral Services	1
339910	Jewelry and Silverware Manufacturing	1
423510	Metal Service Centers and Other Metal Merchant Wholesalers	2
423830	Industrial Machinery and Equipment Merchant Wholesalers	1

PROCESS DESCRIPTIONS

Metal finishing operations involves a process used to prepare or treat the surface of a part, typically a metal substrate, by submerging the part into a tank of solution that typically contains a metal TAC. The part typically would need to be prepared by removing impurities through cleaning or etching tanks before being being plated or anodized. Plating can be either electrolytic (i.e., electroplating) or electroless (e.g., electroless nickel). There may be multiple treatment steps involved for any particular part. This may include a copper layer deposited to even out surface irregularities or build up the thickness of the part. The part may undergo mechanical manipulation, such as buffing, grinding, or polishing to level the surface before being prepared for plating with a decorative layer such as nickel. Some treatments may involve plating with a functional layer such as cadmium for corrosion resistance. Passivation or sealing treatments in tanks may be applied to further protect the parts final surface.

Job shops may additionally receive a part to repair which may necessitate the chemical or electrolytic stripping of plated surfaces prior to the procedures describe above. The stripping of metal layers may result in the accumulation of these removed metal TACs from the part and into the stripping tank solution, which previously did not contain any metal TAC. Metal finishing tanks can be grouped into two type of categories, electrolytic or non-electrolytic.

Electrolytic Tanks

These tanks are typically the electroplating tanks used to deposit a layer of metal on the part, however there are anodizing, electrocleaning, and electrolytic strip tanks as well. Common to all these tanks is the application of an electrical current to drive the intended process for the tank. The tank solution may contain a metal TAC as a reagent for electroplating or anodizing tanks. The tank solution also may contain a metal TAC as a result of electrcocleaning or electrolytic stripping.

Non-Electrolytic Tanks

Metal finishing facilities may have multiple tanks that are in the electroplating or anodizing process line. These include tanks to either prepare or finish parts that are not considered anodizing or electroplating tanks themselves, but the tank solutions may contain a metal TAC.

Tank solutions containing metal TACs – Sources of Fugitive Emissions

Both electrolytic and non-electrolytic tank solution can contain metal TACs. If these tank solutions find their way outside the tank, the metal containing solution can become sources of fugitive emissions if left unattended.

In addition to electroplating tanks, the following are examples of tanks that can contain metal TAC solutions:

- *Seal Tanks*
  Sealing closes the porous surface generated during the anodizing process, which gives the product maximum corrosion resistance and minimizes the wear resistance of the anodized oxide layer. The anodized part is immersed in either hot water, nickel acetate, or sodium dichromate seal tanks. The seal tanks are heated to near boiling temperatures.
- *Passivation Tanks*
  Passivation is a chemical process designed to increase the corrosion resistance of parts. Parts are placed in the tank solution and submerged in a nitric acid bath. A hard non-reactive surface film that inhibits further corrosion forms on the surface. Sodium dichromate can be found in the tank solution.
- *Stripping Tanks*
  Parts may have an existing layer of metal coating on them that must be stripped prior to plating. The stripping process may either use a chemical process or use an electrical current to remove the layer. The concentration of metal TACs in stripping tanks can vary by facility with the concentration increasing with use over time unless there is maintenance or a tank solution clean out.
- *Chromate Conversion Tanks*
  Chromate conversion tanks are also referred to as "chem film" tanks. The conversion process converts the surface properties of the substrate by applying a thin protective coating utilizing bath chemistry rather than an electrolytic process.

Rinse Process

In-between metal finishing processes or toward the end of the process line, metal finishing facilities will rinse a part to remove any residual tank solution that is remaining on the part. This is done by either drag-out/rinse tanks, counter-flow rinsing, or spray rinsing.

- *Drag-Out/Rinse Tanks*
  Following metal finishing of a part, the part can be placed in a drag-out/rinse tank. This tank collects excess tank solution from the previous tank and rinses the part. The drag-out tank is a rinse tank initially filled with water. Air agitation is often used to aid the rinsing process because there is no water flow in the tank to cause turbulence. The rinse tanks may also be heated, depending upon the operation. As the process tank line is operated, no additional water is added to the tank, thus the chemical concentration and the amount of metal TACs in the tank increase as more parts are processed. The liquid can remain in the tank or be processed as waste.
- *Counter-flow Rinsing*
  Counter-flow rinsing is the process of utilizing multiple rinse tanks connected in series. Fresh water flows into the rinse tank located furthest from the process tank and overflows,

in turn, to the rinse tanks closer to the process tank. This technique is called counter-flow rinsing because the work piece and the rinse water move in opposite directions. Over time, the first rinse becomes contaminated with drag-out. The second rinse tank has a lower concentration of metal TACs compared to the first rinse tank. The more counter-flow rinse tanks, the lower the water flow needed for adequate removal of the process solution.

- *Spray Rinsing*
  Spray rinsing is the use of spray nozzles to rinse parts. Spray rinsing can significantly decrease drag-out, however, too high a water pressure can cause water that is laden with metal TACs to ricochet off the parts. Water containing metal TACs that dries on surfaces has the potential to become fugitive emissions. Some facilities use a variety of techniques to contain the water spray, such as spray rinsing in a tank or using splash guards to contain the spraying operation when it occurs over the tanks.

PAR 1426 will address the fugitive emissions from the tank solutions containing metal TACs as well as any tank emissions potentially not captured by required add-on air pollution controls. The metal TACs found in the tank solution of the above tanks processes are the primary source of the fugitive emissions that PAR 1426 addresses through building enclosure, housekeeping, and best management practices. The next section describes how these fugitive emissions are generated at metal finishing facilities.

PATHWAYS FOR FUGITIVE EMISSIONS

Fugitive emissions generally originate from four key areas as summarized in Figure 2.

Figure 2 - Four Key Areas of Fugitive Emissions Movement

Electrified, Air Sparged, and Heated Tanks

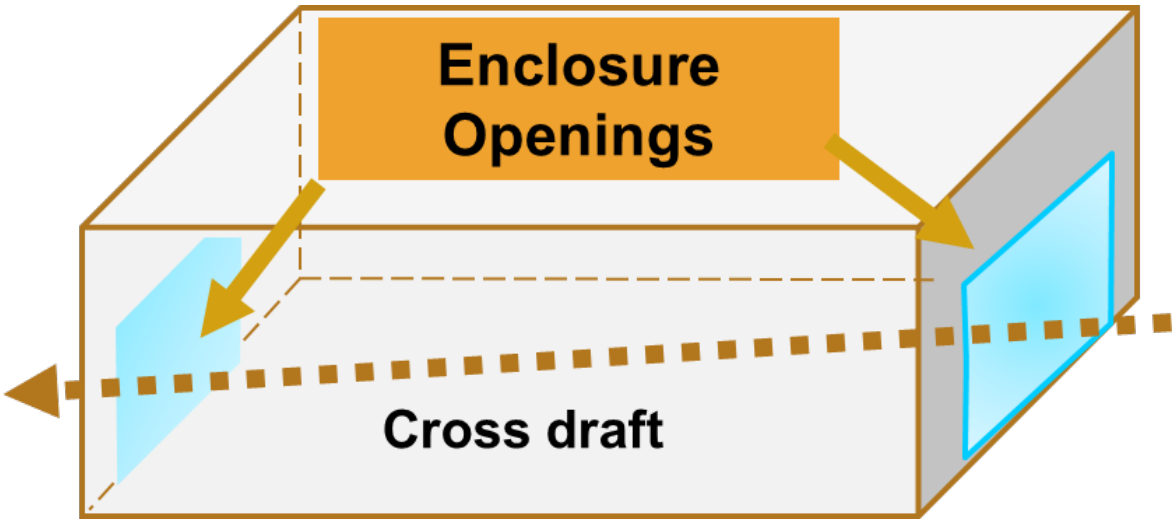
The first category where fugitive emissions are created from a process tank due to electrification, heating, or air sparging, are not captured or controlled due to either:

- Lack or pollution controls that are not required
- Improper maintenance or operation of pollution controls

- Other influences that may affect the 100% capture efficiency

Cross drafts, and other air currents, can carry fugitive emissions outside the building as illustrated in Figure 3 below. Air currents produced from facility operations, such as comfort fans or rectifier fans, or cross drafts can also negatively impact the collection efficiency of an add-on air pollution control device. Fugitive emissions from these tanks can be addressed by both requirements on point source controls in future rulemaking (i.e., inspection, maintenance, and parametric monitoring) as well as building enclosure requirements and best management practices. Cross drafts and air currents are also capable of causing other metal particulates within the building enclosure to become airborne and carrying these particulates outside the building as fugitive emissions.

Figure 3 - Cross Drafts though a Building Enclosure



Tank solutions that leave the metal finishing tanks

The second category occurs when the metal TACs in the tank solution makes their way outside of a tank that is intended to contain these metal TACs. This occurs primarily during the movement of parts out of the tank with residual tank solution that drips (i.e, dragout) onto unintended surfaces such as the floor. Tank solutions can also splash onto the ground during vigorous rinsing operations and agitation. These occurrences can be minimized through the use of drip trays and splash guards as best management practices. The accumulations of tank solution on surfaces can be minimized through routine housekeeping and spill cleanup.

Dried Tank Solutions Tracked Outside Building Enclosure

The third key category occurs when there is an accumulation of dried tank solutions that build up over time and become solid. These solids can become metal particulates when crushed where it is tracked outside the building enclosure by foot or equipment traffic. These solids can be minimized though routine housekeeping. The use of specific cleaning methods is important as cleaning methods such as using a broom or a non-HEPA vacuum can entrain dried metal particulates into the air as the solids are not captured.

Practices How Parts and Materials are Cleaned, Stored, and Handled

The fourth key category involves practices used by facilities that are known to generate fugitive emissions. This includes the storage and handling wastes, spent filters cleaning equipment, tank covers, extra anodes and cathodes that have come in contact with the metal TAC tank solutions. Proper handling of these materials in a careful manner using closed containers with a fitted lid and storing in enclosed storage areas minimizes the likelihood that the dried metal particulates can be entrained due to air currents and carried outside the building enclosure by cross drafts as fugitive emissions.

SITE VISITS AND FACILITY SURVEY

As part of PAR 1426 development, staff conducted site visits at 11 facilities that conducted metal finishing using tanks containing a metal TAC. Beginning in 2019 and continuing into 2020, staff performed pre-arranged site visits at these facilities. Unfortunately, COVID-19 prevented further site visits after March 2020. The site visits focused on housekeeping, best management practices, emission control methods at electroplating and non-electroplating tanks, conditions of buildings containing process tanks. A facility survey was sent to the potentially affected facility to gather additional information for rulemaking.

Based on the site visits for PAR 1426, staff observed that all 11 facilities conducted metal finishing within a building enclosure. Housekeeping varied but most facilities employed some form of routine housekeeping to address fugitive emissions. Staff observed potential housekeeping issues such as: mops stored out in the open and a visible accumulation of dried tank solution at circulation pumps. Drip trays were installed to minimize dragout and splash guards were installed to control spray rinsing operations.

Staff received 38 responses from the survey sent out to the potentially affected facilities. No facility reported operating tanks outside a building enclosure. 33 of the 38 facilities reported conducting housekeeping in the tank process area at least weekly. 18 of the 38 facilities reported that the housekeeping was performed it daily. 18 of the 38 facilities reported using drip trays. Nine facilities reported the use of splash guards with spray rinsing, while seven reported using spray rinsing without splash guards, and one facility performed spray rinsing inside a tank.

In addition to the facility information obtained during the development of PAR 1426, staff conducted site visits at 47 facilities subject to Rule 1469 from the beginning in 2015 and continuing into 2018 as part of the rule development for the 2018 amendment. Many of these Rule 1469 facilities would be subject to the requirements of PAR 1426. The site visits included the focus on housekeeping, conditions of buildings containing hexavalent chromium tanks, and grinding operations. Staff observed fugitive emissions generated due to atomization of chromium-laden liquid, contamination, or uncontained tank solutions being dried liquid originating from uncontained chromium-laden liquids during parts rinsing without splash guards and drag out without drip trays.

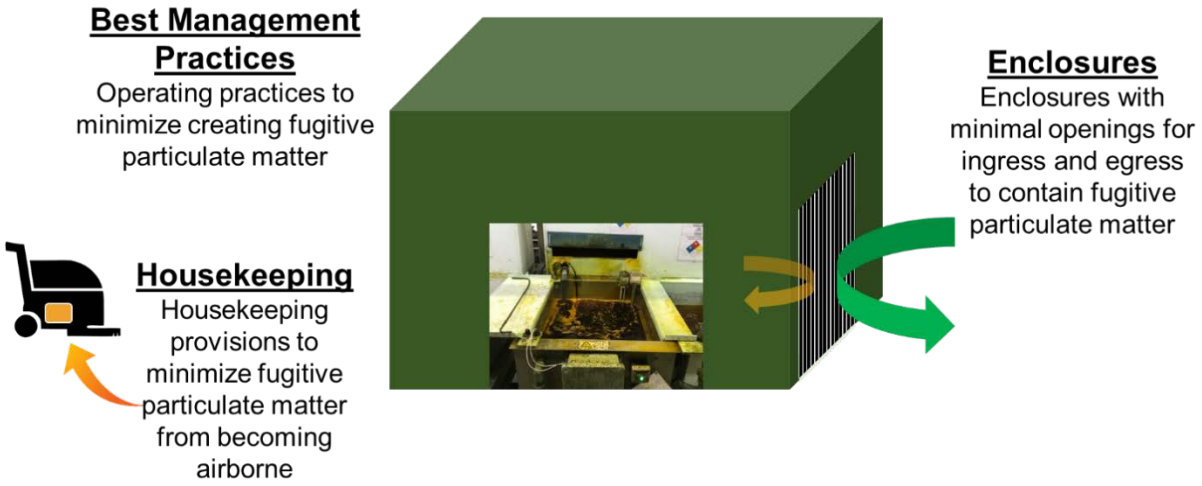
NEED FOR PROPOSED AMENDED RULE 1426

As previously discussed, prior rule developments efforts demonstrated that building enclosure requirements, housekeeping requirements, and best management practices were effective in reducing metal TAC emissions from facilities. Rule 1426 currently has minimal housekeeping and

best management practice requirements and lacks any requirements for building enclosures. The pathways for fugitive emissions to be created and be discharged out of the facility are similar to other metal TAC operations and are nearly identical to facilities subject to Rule 1469.

PAR 1426 is needed to ensure that the emissions from hexavalent chromium, nickel, and cadmium are reduced using building enclosure requirements, enhanced housekeeping requirements, and best management practices that are now required by recent South Coast AQMD rules regulating metal TACs. PAR 1426 would focus on fugitive emissions reductions primarily due to the metal TACs found in the tank solutions when they make their way outside of the tanks that were meant to contain them. These three categories are described in Figure 4.

Figure 4 - Three Main Strategies to Minimize Fugitive Emissions



Hexavalent chromium, nickel, cadmium, lead, and copper are metal TACs with acute and chronic health effects that are harmful to humans as discussed earlier. Recent South Coast AQMD rules that regulate metal TACs have provisions for building enclosure requirements, housekeeping requirements, and best management practices to address emissions due to metal TACs. Table 3 and

Table 4 compare recent South Coast AQMD rules to PAR 1426. Best management practices are specific to the operations regulated by the respective rules, so they are not directly comparable to other non-metal finishing operations. PAR 1426 incorporates the needed best management practices from Rule 1469 such as the use of drip trays and splash guard to minimize tank solutions making their way outside the tanks resulting in fugitive emissions.

The control of metal TAC emissions from electrolytic, heated, and air-sparged tank solutions with metal TACs from process tanks would be addressed through point source control requirements in future Proposed Rules 1426.X (PR 1426.X) through separate rulemaking for specific metal TACs, such as lead, nickel, and cadmium. Additional information, such as emission testing results, needs to be collected to determine the appropriate point source controls and requirements for metal TACs other than hexavalent chromium. It is anticipated that PR 1426.1 rulemaking will follow after PAR 1426 in order to address point source emissions from currently unregulated non-electrolytic hexavalent chromium tanks, identified in during the recent rule development efforts for amendments to Rule 1469, at non-Rule 1469 facilities.

Table 3 - Comparison of Enclosure Provisions of South Coast AQMD Rules

Requirement	Rule 1407 Metal Melting (Cadmium, Arsenic, and Nickel)	Rule 1420 Lead Standards (Lead)	Rule 1420.1 Lead-Acid Battery Recycling (Lead, Arsenic)	Rule 1420.2 Lead Metal Melting (Lead)	Rule 1430 Metal Grinding (Various Metals)	Rule 1426 Metal Finishing Operations (Multiple Metals)
Require operation in a building enclosure	Yes	Yes	Yes	Yes	Yes	No
Cross draft restrictions	Yes	Yes	Yes	Yes	Yes	No
Sensitive receptor or school proximity based requirements	No	No	Yes	No	Yes	No

Table 4 - Comparison of Housekeeping Provisions of South Coast AQMD Rules

Category	Rule 1407 Metal Melting (Cadmium, Arsenic, and Nickel)	Rule 1420 Lead Standards (Lead)	Rule 1420.1 Lead-Acid Battery Recycling (Lead, Arsenic)	Rule 1420.2 Lead Metal Melting (Lead)	Rule 1430 Metal Grinding (Various Metals)	Rule 1426 Metal Finishing Operations (Multiple Metals)
Approved Cleaning Methods	Yes	Yes	Yes	Yes	Yes	No
Routine Cleaning	Yes	Yes	Yes	Yes	Yes	No
Cleaning Spills	Yes	Yes	Yes	Yes	No*	No

* Does not involve metals in liquid form

PUBLIC PROCESS

Development of PAR 1426 is being conducted through a public process. A PAR 1426 Working Group has been formed to provide the public and stakeholders an opportunity to discuss important details about the proposed rule and provide staff with input during the rule development process. The PAR 1426 Working Group is composed of representatives from businesses, environmental groups, public agencies, and consultants. South Coast AQMD has held five working group meetings conducted virtually using Zoom due to COVID-19 restrictions. The meetings were held on June 24, 2020, August 19, 2020, September 23, 2021, November 4, 2020, and December 2, 2020. In addition, a Public Workshop is scheduled to be held on January 28, 2021 to present the proposed amended rule and receive public comment.

CHAPTER 2 – SUMMARY OF PROPOSED AMENDED RULE 1426

OVERVIEW OF PAR 1426

PAR 1426's objective is to further reduce fugitive emissions from facilities that conduct metal finishing using tank solutions that contain metal TACs such as hexavalent chromium, nickel, cadmium, or lead in the tank solutions. PAR 1426 accomplishes this with building enclosure, housekeeping, and best management practice requirements. Building enclosure requirements prevent the migration of fugitive emissions to leave the facility due to cross drafts. Housekeeping requirements minimize the accumulation of metal TACs that can become fugitive emissions. Best management practices minimize tank solutions from leaving the tank. During the rule development process of PAR 1426, stakeholders commented that different metals have different toxicity and should have different requirements. While nickel, cadmium, and lead are less toxic than hexavalent chromium, they still have long-term health effects. However, copper has only acute health effects at comparatively larger REL with mild health effects.

Additionally, existing South Coast AQMD Rule 219 – Equipment Not Requiring a Written Pemrit Pursuant to Regulation II was amended in May 2017 to address operations or equipment that would or would not require a permit. Rule 219 paragraphs (p)(4) and (p)(5) were amended to require tanks that contain chromium, nickel, lead, or cadmium and are either rectified, sparged, or heated to be listed on a South Coast AQMD permit. Copper electroplating is an exempt process pursuant to Rule 219 subparagraph (p)(5)(A). As such, the requirements for copper emissions from copper electroplating operations are being removed.

The basis for the requirements is from other toxic metal South Coast AQMD rules that have requirements to minimize fugitive emissions as discussed in Chapter 1. For facilities that are subject to both PAR 1426 and Rule 1469, PAR 1426 either builds upon the requirements or mirrors the requirements. PAR 1426 provides exemptions and clarifications where Rule 1469 and Rule 1426 provisions affect the same activity at the facility to identify which rule would apply and to avoid duplicative requirements.

PAR 1426 was developed during the COVID-19 pandemic, which caused facilities to have restrictions to operate and prevented South Coast AQMD staff from physically meeting with stakeholders. During the rule development process, industry stakeholders request a delayed implementation date for potential requirements due to the financial strain that COVID-19 created for their industry. Industry stakeholders expressed concern with the financial hardships due to increase compliance costs to comply with OSHA requirements, supply chains that were negatively impacted, reduced consumer demand, and some facilities not being able to operate for an extended period of time because they were deemed as "non-essential businesses". Recognizing the difficulties faced by the industry stakeholders during this pandemic, PAR 1426 implementation dates have been adjusted to reflect the challenges brought upon due to COVID-19. PAR 1426 was developed through a public process with multiple meetings with stakeholders. This chapter outlines changes and additions made to the current version of Rule 1426 and is divided into subdivisions as they appear in PAR 1426.

PROPOSED RULE 1426

Purpose – Subdivision (a)

The purpose of PAR 1426 is to reduce fugitive emissions from metal finishing of hexavalent chromium, nickel, cadmium, or lead emissions associated with operation of process tanks. This subdivision was added to PAR 1426, consistent with other South Coast AQMD rules.

Applicability – Subdivision (b)

PAR 1426 amends the applicability to apply to an owner or operator of any metal finishing facility using a process tank with a solution containing hexavalent chromium, nickel, cadmium, or lead. Rule 1426 previously applied only to facilities that conduct electroplating of metals or chromic acid anodizing. However, there are facilities with tanks containing metals found in process lines without any electroplating tanks. Solutions with metals in these non-electrolytic tanks are also sources of fugitive metal emissions should they make their way outside the tank. These include rinse and strip tanks used in metal finishing operations which would be accumulate enough metals to be defined as a process tank if the concentration is 1,000 ppm or greater for an individual metal.

Definitions – Subdivision (c)

PAR 1426 includes definitions for specific terms. Several of the definitions are based on Rule 1469 with slight modifications, while other definitions are unique to PAR 1426. For certain definitions, additional clarification is provided in this section or where the definition is used within a specific subdivision. Please refer to PAR 1426 subdivision (c) for definitions used in the proposed amended rule.

PAR 1426 modifies, removes, or adds the definitions of the following terms used in the proposed amendment. Please refer to PAR 1426 for actual definitions. Key definitions would be discussed in the associated rule requirement.

- ADD-ON AIR POLLUTION CONTROL EQUIPMENT (modified)
- APPROVED CLEANING METHOD (added)
- BARRIER (added)
- BUILDING ENCLOSURE (added)
- CHROMIUM ELECTROPLATING OR CHROMIC ACID ANODIZING TANK (added)
- CONTAINER WITH A FITTED LID (added)
- DRAGOUT (added)
- ELECTROPLATING BATH (removed)
- ENCLOSED STORAGE AREA (modified)
- FUGITIVE DUST (modified)
- HEPA VACUUM (added)
- METAL (added)
- METAL FINISHING (added)
- METAL PLATING FACILITY (removed)
- METAL REMOVAL FLUID (added)
- PROCESS TANK (modified)
- SCHOOL (added)
- SENSITIVE RECEPTOR LOCATION (modified to sensitive receptor)
- STALAGMOMETER (removed)

- SURFACE TENSION (removed)
- TANK PROCESS AREA (added)
- TENSIOMETER (removed)
- TIER I HEXAVALENT CHROMIUM TANK (added)
- TIER II HEXAVALENT CHROMIUM TANK (added)
- TIER III HEXAVALENT CHROMIUM TANK (added)
- WEEKLY (added)

Requirements – Subdivision (c) and Inspection and Maintenance Requirements – Subdivision (d) - REMOVED

In Rule 1426, paragraphs (c)(1) to (c)(3) required the collection of data and the submission of an Initial Compliance Report and a Compliance Report, and by specific dates. These dates have past and are no longer applicable. As these requirements are no longer applicable, PAR 1426 would remove them.

Rule 1426 paragraphs (c)(4), (c)(5), and (d)(1) have been moved to Interim Requirements for Facilities in subdivision (i) in order to keep these current rule requirements in effect until the implementation date of respectively either Housekeeping Requirements in subdivision (e) or Best Management Practices in subdivision (f), at which point the interim requirements are phased out. A discussion of each revision is in the specific subdivision. Table 5 provides a summary of the current provision under Rule 1426 and the corresponding interim and permanent provisions under PAR 1426.

Table 5 - Prior Requirements

Rule 1426 Location	PAR 1426 – Interim Requirements for Facilities	PAR 1426 – Permanent Subdivision Location	PAR 1426 – Rule Reference
(c)(4)	(i)(1)	Best Management Practices	(f)(7)
(c)(5)(A)	(i)(2)(A)	Housekeeping Requirements	(e)(1)
(c)(5)(B)	(i)(2)(B)	Housekeeping Requirements	(e)(2)
(c)(5)(C)	(i)(2)(C)	Housekeeping Requirements	(e)(4)
(c)(5)(D)	(i)(2)(D)	Housekeeping Requirements	(e)(5)
(d)(1)	(i)(2)(E)	Best Management Practices	(f)(6)
(e)(2)	(i)(3)	Recordkeeping	(g)(3)

As the requirements of Rule 1426 subdivision (c) and subdivision (d) have been either moved or removed, PAR 1426 is deleting subdivision (c) and (d).

Building Enclosure Requirements – Subdivision (d)

PAR 1426 adds requirements that metal finishing operations using process tanks, and mechanical activities such as grinding, polishing, or buffing must be conducted within a building enclosure beginning January 1, 2023 that is designed to meet specific requirements to prevent cross draft by the implementation date. A building enclosure is a permanent building or physical structure with a floor, walls, and a roof to prevent exposure to the elements, (e.g., precipitation, wind, run-off),

with limited openings to allow access for people, vehicles, equipment, or parts. A room within a building enclosure that is completely enclosed with a floor, walls, and a roof would also meet this definition. The building enclosure exterior walls should be solid and permanent to withstand winds, preventing the passage of cross draft from outside the building enclosure. However, a building enclosure does not need to have walls at all sides. The purpose of a building enclosure is to contain fugitive emissions and provisions for the building enclosure focus on preventing cross drafts that can carry fugitive emissions through the building and that may affect the collection of emissions from pollution control equipment.

Process tanks already operating at Chromium Electroplating or Chromic Acid Anodizing facilities in building enclosures for Tier II and III tanks would already meet the more stringent requirements of Rule 1469 therefore would be exempt from subdivision (d) of this rule.

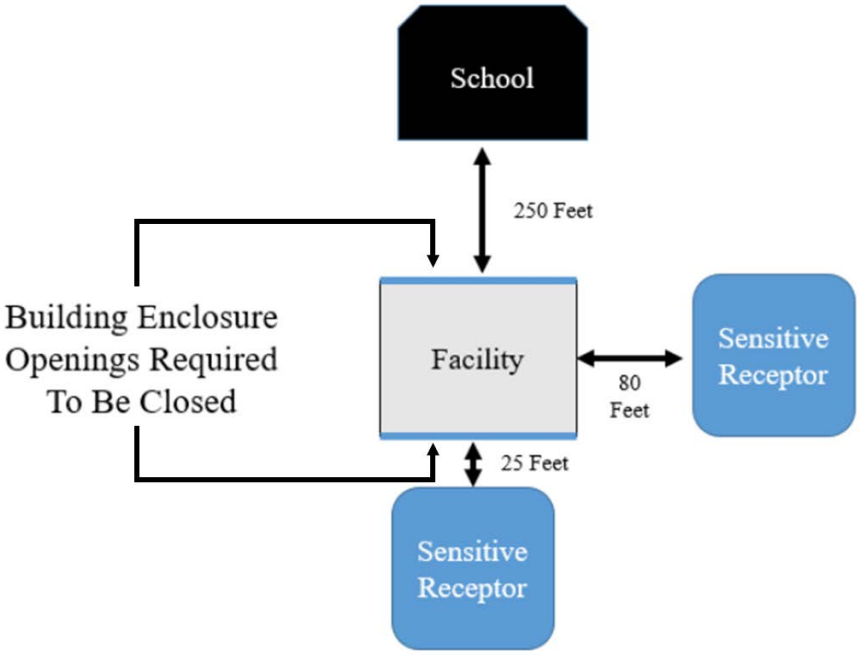
Prevention of Crossdraft (d)(1)

Paragraph (d)(1) establishes the requirements to eliminate or minimize cross draft from activities that can generate fugitive emissions if those activities are not performed within a building enclosure. Subparagraphs (d)(1)(A) and (d)(1)(B) specify the requirements of the building enclosure.

Subparagraph (d)(1)(A) prohibits the concurrent opening of building enclosure openings at opposite ends of a building enclosure to eliminate cross-drafts. Under this subparagraph, the owner or operators are required to ensure that any building enclosure opening that is on opposite ends of the building enclosure where air movement can pass through are not simultaneously open except during the passage of vehicles, equipment or people by either closing or using one or more of the methods for the enclosure opening(s) on one of the opposite ends of the building enclosure. A provision was added to PAR 1426 that also allows use of a barrier or obstruction, such as a large piece of equipment, a wall, or any other type of barrier that restricts air movement from passing through the building enclosure to meet this requirement.

Subparagraph (d)(1)(B) establishes additional requirements for enclosure openings that are facing a sensitive receptor or school. Except for the movement of vehicles, equipment or people, the owner or operator is required to close any building enclosure opening or use any of the methods that prevent cross draft that directly faces and opens towards the nearest: (A) sensitive receptor, with the exception of a school, that is located within 1,000 feet, as measured from the property line of the sensitive receptor to the building enclosure opening; and (B) school that is located within 1,000 feet, as measured from the property line of the school to the building enclosure opening. If more than one school is within 1,000 feet of the building enclosure, only enclosure openings that directly face the nearest school are required to be closed to comply with subparagraph (d)(1)(B). Also, if more than one sensitive receptors, that is not a school, are within 1,000 feet of the building enclosure, only enclosure openings that directly face the nearest sensitive receptor are required to be closed to comply with paragraph (d)(2). Figure 5 provides an overview of the requirements for building enclosure opening restrictions for subparagraph (d)(1)(B).

Figure 5 - Building Enclosure Openings Required To Be Closed When Within 1,000 Feet of Sensitive Receptors and Schools



Buffing, Grinding, and Polishing Operations (d)(2)

Paragraph (d)(2) requires all buffing, grinding, and polishing operations to take place within a building enclosure to prevent the generation of fugitive emissions unless these operations are conducted under a flood of metal removal fluid to prevent the generation of dry particulates.

During the rule development process, stakeholders commented to South Coast AQMD that the California Department of Industrial Relations, Division of Occupational Safety and Health (Cal/OSHA) had required new temporary practices[1] in response to COVID-19. Staff contacted Cal/OSHA to enquire about the new requirements. Cal/OSHA staff stated that the COVID-19 requirements were primarily to ensure social distancing and the use of masks while in the workplace. These measures are dependent on the facility and would be incorporated into a facility's Injury Illness Prevention Program. Examples of measures that a facility could implement are plastic barriers, social distancing of employees, or installing new air filters. As such, staff does not anticipate that there would be any conflicts with Cal-OSHA requirements with the most recent COVID-19 requirements.

Housekeeping Requirements – Subdivision (e)

PAR 1426 housekeeping requirements are intended to prevent the accumulation of metals that can become fugitive, require the proper handling of materials that may contain metals, and to properly operate the cleaning equipment beginning January 1, 2023. Due to the similar operating process of facilities subject to the requirements of Rule 1469, many of the housekeeping requirements are incorporated from Rule 1469 and modified to meet the applicability of PAR 1426. Specific

[1] Cal/OSHA COVID-19 Temporary Emergency Standards – What Employers Need to Know fact sheet can be found at: https://www.dir.ca.gov/dosh/dosh_publications/COVIDOnePageFS.pdf. Accessed on 12/20/2020.

operations or areas that are subject to the housekeeping requirements of Rule 1469 would be exempt from the corresponding rule requirement in PAR 1426 to avoid duplication. However, some facilities may be subject to both the requirements of Rule 1469 and PAR 1426. An example would be a facility with two separate tank process areas: A tank process area for nickel electroplating without any tanks subject to Rule 1469 would be subject to the housekeeping requirements of PAR 1426 and a tank process area for chrome electroplating would be subject to the housekeeping requirements of Rule 1469.

PAR 1426 moves housekeeping requirements from the Rule 1426 Requirements - Subdivision (c), to its own dedicated subdivision (e) and modifies the existing requirement to include hexavalent chromium, specifies the areas that are required to be cleaned, and modifies the frequency of cleaning.

Storage and Transport of Chemicals (e)(1) and (e)(2)

Paragraph (e)(1) is a modification to Rule 1426 subparagraph (c)(5)(A), which specified the storage of nickel, cadmium, lead, and copper in powder or metal salt. PAR 1426 modifies the requirement to include hexavalent chromium, removes copper, and clarifies the use of closed containers with a fitted lids. The manufactured container with accompanying lid must be designed to contain the contents inside preventing spillage and disturbance by air currents during storage. Examples would include a closeable hazardous waste bin or a 55-gallon drum and lid fastened with a metal band. When the chemical is not being used, the closed container would be stored in an enclosed storage area, which would be in dedicated area protected from potential air currents that could entrain metals. Acceptable examples would include a separate room with a door or a chemical storage cabinet.

Paragraph (e)(2) is a modification to Rule 1426 subparagraph (c)(5)(B), which required the use of closed containers with a fitted lid when transporting nickel, cadmium, and lead in powder or metal salt. PAR 1426 expands this requirement to include all four metals and the use of a closed container with a fitted lid.

Cleaning of Spills and Regular Cleaning (e)(3)

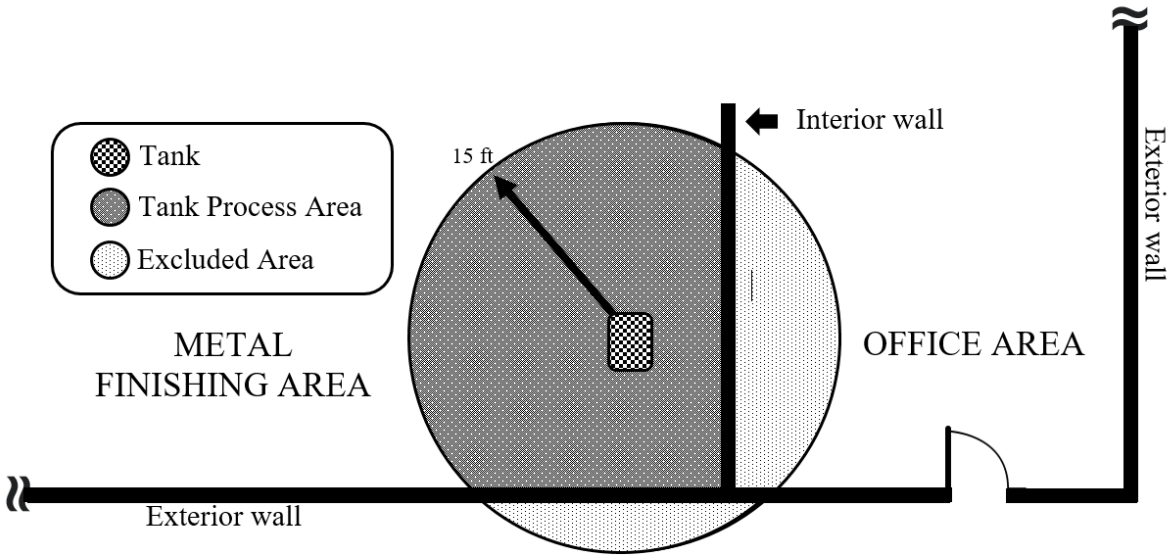
Paragraph (e)(3) requires the cleaning of areas or spills to prevent the accumulation of material that can lead to fugitive emissions.

Subparagraph (e)(3)(A) requires the cleanup of any spills at the facility using of an approved cleaning method immediately but no later than one hour of the spill of any materials that may contain a metal.

Subparagraphs (e)(3)(B) and (e)(3)(C) are modifications to subparagraph (c)(5)(C) regarding areas to be cleaned. The use of an approved cleaning method when cleaning is performed in the specified areas or locations weekly. A tank process area is the area within 15 feet of the lip of a process tank unless there is a wall that is closer than 15 feet that would prevent any tank solution from spreading beyond the wall during normal operations of the process tank. **Error! Reference source not found.** illustrates an example of this situation.

Subparagraph (e)(3)(D) requires that on each day when buffing, grinding, or polishing, the owner or operator shall clean floors within 20 feet of a buffing, grinding, or polishing workstation. The requirements of subparagraph (e)(3)(D) do not apply to owner or operators that utilize a metal removal fluid to control buffing, grinding, or polishing operations

Figure 6 - Example of a Tank Process Area



Storage of Waste (e)(4)

Paragraph (e)(4) is a modification to subparagraph (c)(5)(D) regarding the storage of wastes. This paragraph was modified to require that containers that hold chromium or chromium-containing waste material shall be kept closed at all times except when filling or emptying. Based on site-visits, many facilities were already implementing this practice.

Removal of Fabric Flooring (e)(5)

Paragraph (e)(8) has been added to require owners or operators to remove any flooring in the tank process areas that is made of fabric or fibrous material such as carpets or rugs. Examples of acceptable flooring material are wooden floor boards and other solid material that can be cleaned and maintained as prescribed by the rule.

Storage of Equipment (e)(6)

Paragraph (e)(6) has been added to require the storage of equipment that may have been in contact with Metal TACs in either a closed container with a fitted lid or an enclosed storage area to minimize fugitive emissions.

Operating HEPA Vacuum (e)(7)

Paragraph (e)(7) requires that if a HEPA vacuum is used to comply with housekeeping provisions of subdivision (e), that the HEPA filter is free of tears, fractures, holes or other types of damage, and securely latched and properly situated in the vacuum to prevent air leakage from the filtration system. An owner or operator should have a HEPA vacuum maintained and serviced per manufacturer's recommendations to ensure the integrity of the filtration as any breakthrough

passing the HEPA filter will result in metal TACs entrained into the air. Workers should follow the manufacturer's recommended precautions regarding Personal Protective Equipment when servicing the HEPA vacuum. All wastes collected and removed during filter changes or cleaning of the HEPA vacuum must be handled, stored, and disposed as hazardous waste.

The definition for HEPA vacuum was added to clarify its use as an approved cleaning method. A HEPA vacuum needs to be designed and equipped with HEPA filters that have been individually tested and certified by the manufacturer to have a control efficiency of not less than 99.97 percent on 0.3 micron particles. South Coast AQMD added the specific designs to differentiate with home or commercial "HEPA-like" vacuums, which are not tested nor intended to clean-up toxic metal TAC spills. Staff contacted multiple manufacturers to verify that the filters are individually tested. A certification or statement from the manufacturer can demonstrate that the vacuum satisfies this definition that the fitted HEPA filter is individually tested and certified. Staff found that local hardware stores offer for sale "HEPA-like" vacuums with filters that are lot (batch) tested, which does not satisfy this definition of HEPA Vacuum. In addition, HEPA vacuums are designed to be operated for either "dry" or both "wet and dry" cleanup of materials. A HEPA vacuum operated contrary to manufacturer's design or recommendations may have its filters damage or compromised. Prior to obtaining a HEPA vacuum, an owner or operator should consult with their vendor to ensure that the proper HEPA vacuum is selected for the housekeeping requirements needed when dealing with solid and liquid metal TACs.

Best Management Practices Requirements – Subdivision (f)

PAR 1426 creates a new subdivision, (f), for the use of Best Management Practices beginning January 1, 2023. A best management practice prescribes how an owner or operator shall conduct metal finishing and other ancillary operations to prevent the release or generation of fugitive dust that contain metals. This can occur when the tank solution leaves a process tank and the tank solution dries up. Specific operations or areas that are subject to the housekeeping requirements of Rule 1469 would be exempt from the corresponding rule requirement in PAR 1426 to avoid duplication.

Drip Trays, Collection Devices, or Containment Devices (f)(1), (f)(2), and (f)(3)

Paragraphs (f)(1) and (f)(2) require owners or operators to install and use drip trays, collection devices, or containment devices for automated or manual process lines. An automated line has tanks that are in a sequence where parts and equipment are submerged into a tank with an automated hoist. Drip trays, collection devices, and containment devices are designed to prevent dragout. Dragout is the fluid that drips from parts or equipment as it is removed from a process tank and is not collected or returned to a tank. Instead, the tank solution ends up on surfaces such as tank lips or walkways. These tank solutions can be carried out of the facility through vehicle or foot traffic or dried out and be carried out through cross drafts.

Paragraph (f)(3) requires collected tank solution to be returned to the tank, unless the tank solution is treated as waste or a spill. Staff has observed during the development of PAR 1426 and the most recent amendment to Rule 1469 in 2018 that drip trays are placed between tanks to prevent tank solutions from landing on surfaces. The drip trays return the collected tank solutions to the tanks.

Spray Rinsing (f)(4)

Paragraph (f)(4) prohibits owners or operators from spray rinsing parts or equipment that were previously in a process tank, unless the part or equipment are:

- Fully lowered inside a tank where the liquid is captured in the tanks
- Above a tank where all liquid is captured and returned to the tank that has splash guards that is free of holes, tears or openings; or
- For tanks located within a process line utilizing an overhead crane system that would be restricted by the installation of splash guards, a low pressure spray nozzle may instead be used and operated in a matter that water flows off of the part or equipment. A low pressure spray was determined to be 35 pounds per square inch based on the definition of low pressure for residential water pressure.

Tank Labeling (f)(5)

Paragraph (f)(5) requires owners or operators to label each tank within the tank process area that specifies the tank name or other identifier, South Coast AQMD permit number and tank number, bath contents, maximum concentration (in ppm) of all metals, rectification, operating temperature range, and any agitation methods used, if applicable. Tank labeling will help operators as well as staff identify process tanks and ensure the appropriate operating conditions are maintained.

Barriers for Buffing, Grinding, and Polishing (f)(6)

Paragraph (f)(6) requires the installation of a barrier that separates the buffing, grinding, or polishing area from a process tank that is located in the same building enclosure. The requirement prevents the generation of particulates that could act as a transportation medium for metals.

Inspection and Maintenance of Add-On Pollution Controls (f)(7)

Paragraph (f)(7) was previously in Rule 1426 paragraph (d)(1), but is incorporated and restructured in best management practices. The requirement requires inspection and maintenance of add-on air pollution control equipment pursuant to the manufacturer schedule or at least once per calendar quarter. This requirement only applies to nickel, cadmium, and lead electroplating process tanks. Additional requirements to verify proper operation of add-on air pollution control equipment is anticipated in future rule developments or is specified in Rule 1469.

Air Sparging (f)(8)

Paragraph (f)(8) expands the air sparging prohibitions originally specified in paragraph (c)(4) of Rule 1426 to include all process tanks instead of just process tanks containing chromic acid. Process tanks cannot be air sparged when metal finishing is not occurring or while a dry chemical containing a metal is being added.

Recordkeeping – Subdivision (g)

Paragraph (g)(1) modifies the existing requirement in subparagraph (e)(1)(A) to expand the requirement to maintain ampere hour records for all process tanks with an ampere meter and not just the process tanks with a dedicated ampere meter.

Paragraph (g)(2) requires the owner or operator to photograph the ampere-hour reading of the ampere-hour being replaced and the new ampere-hour meter immediately after installation.

Paragraph (g)(3) and (g)(4) requires maintaining of records to demonstrate compliance with housekeeping, best management practice, and recordkeeping requirements. Owners or operators would need to demonstrate that compliance with rule requirements are demonstrated by the effective dates and that periodic activities such as weekly cleaning requirements are being conducted. A checklist would satisfy this requirement.

Reporting – Subdivision (h)

Subdivision (h) specifies the requirements for an owner or operator to submit and maintain a Tank Inventory Report. The Tank Inventory Report serves as a current list of process tanks with specific operating information that can assist both the operator and staff in identifying and obtaining an accurate count of process tanks. The count of process tanks may assist in the development of future rules for metal finishing. The Tank Inventory Report is not a substitute for a permit nor will changes that are made in the Tank Inventory Report serve as a substitute for a permit modification. The owner or operator would still be required to comply with all applicable permit requirements and procedures.

Tank Inventory Report (h)(1), (h)(2), (h)(3), and (h)(4)

Paragraph (h)(1) specifies the deadline when a facility is required to submit a Tank Inventory Report. A facility is only required to submit a Tank Inventory Report once. As discussed in Chapter 1, a facility survey was sent to potentially affected facility owners or operators to gather information for PAR 1426. The survey requested information that would be included in the Tank Inventory Report. An owner or operator of a facility may review and update the submitted survey and resubmit to South Coast AQMD in order to satisfy the requirements of paragraph (h)(1).

Paragraph (h)(2) specifies the required contents in the Tank Inventory Report. This information may be similar to what is submitted in a permit application, but it is not identical. Older permit application may not include the specific temperature range, the concentration in ppm, and the specific metal.

Paragraph (h)(3) requires the owner or operator to keep the Tank Inventory Report and provide it to South Coast AQMD staff upon request.

Paragraph (h)(4) requires the owner or operator to provide an updated Tank Inventory Report, that reflects the current equipment at the facility, within 14 days of receiving a written request from the Executive Officer.

Interim Requirements for Facilities – Subdivision (i)

As discussed in prior subdivisions, many of the existing rule requirements from Rule 1426 and have been re-organized in PAR 1426. Some requirements have a delayed implementation date before the owner or operator is required to comply with the new requirements. To avoid a potential backsliding of existing requirements until the future implementation date, subdivision (i) incorporates prior housekeeping, best management practices, and recordkeeping requirements existing in Rule 1426. These requirements would be effective until the requirements of subdivisions (e) and (f) become effective. These requirements would only apply to facilties conducting chromium, nickel, or lead electroplating, or chromic acid anodizing, which were already subject Rule 1426.

Exemptions – Subdivision (j)

Rule 1426 required facilities to submit process and tank information after the adoption of the rule. This requirement could be met through either through the submittal of a compliance report or by complying with the emission inventory requirements of Rule 1402 as the information submitted in an emission inventory for AB2588 would satisfy the intent of the Rule 1426's reporting requirements. Rule 1426 subdivision (f) exempts facilities that are in compliance with Rule 1426 from submitting an emission inventory pursuant to Rule 1402. The reporting requirement has been removed as the submittal dates have passed. Therefore the exemption to only submit data pursuant to either Rule 1426 or Rule 1402 is not needed and will be removed in PAR 1426.

Facility Wide Exemption (j)(1)

Paragraph (j)(1) allows an entire facility to be exempt from PAR 1426 provided the owner or operator can demonstrate that the metal concentration in all metal finishing tanks are less 1,000 ppm. A facility can demonstrate this through a written laboratory record such as report or an internal document that indicates the concentration and the specific process tank using an approved ASTM, CARB, or EPA method. While most process tanks operate within a specified metal concentration, rinse and stripping tanks can have their concentrations increase over time. Owners or operators of rinse and stripping tanks would need to regularly maintain the baths to ensure that the concentration remains below the 1,000 ppm threshold, which may involve more frequent testing. Staff may collect a sample of solution for analysis from a previously exempt process tank if there is concern that the process tank exceeds the 1,000 ppm concentration. If the sample demonstrates that the process tank is above a concentration of 1,000 ppm for any metal, the process tank would no longer be exempt and would be subject to the requirements of PAR 1426 effective the date the sample was collected. Additionally, facilities would not be eligible for the exemption if any South Coast AQMD permit(s) for metal finishing includes a hexavalent chromium, nickel, cadmium, or lead electroplating tank, a chromic acid anodizing tank, or an operating condition where the maximum concentration exceeds 1,000 ppm.

Duplicative Requirements with Other Rules (j)(2) and (j)(3)

Paragraphs (j)(2) and (j)(3) exempt specific processes, tanks, and operations from the requirements of PAR 1426 as the facility is subject to an equivalent or more stringent requirement in another South Coast AQMD rule.

Metal Removal Fluid (j)(4)

Paragraph (j)(4) exempts buffing, grinding, or polishing operations which are conducted under a continuous flood of metal removal fluid. The application of metal removal fluid has been demonstrated to reduce fugitive emissions. This exemption is applicable for buffing, grinding, or polishing operations of materials other than hexavalent chromium, nickel, cadmium or lead, such as aluminum or copper.

Appendices

The following appendices are proposed to be removed as they listed the requirements for a report that is no longer required.

Appendix 1 – Content of Initial Compliance Report

Appendix 2 – Content of Compliance Report

CHAPTER 3 – IMPACT ASSESSMENT

AFFECTED SOURCES

Based on site visits conducted by staff, South Coast AQMD permit database, and internet searches, there are a total of 353 facilities that conduct metal finishing, such as anodizing, passivation, or plating. As part of this rule development process, staff conducted site visits at 11 facilities, each with a variety of air pollution controls and operations.

EMISSIONS IMPACT

PAR 1426 affects 353 facilities conducting metal finishing that use hexavalent chromium, nickel, cadmium, or lead. Based on an evaluation of best available information for these facilities, many facilities have already implemented equivalent or more stringent methods to reduce fugitive emissions. However, it is anticipated that the implementation of PAR 1426 will reduce fugitive emissions from facilities that have not implemented building enclosure requirements, housekeeping requirements, and best management practices. This can include minimizing cross draft, reducing tank solutions from leaving the tank, and performing regular housekeeping to prevent the accumulation of a metal TAC. Quantifying the fugitive source emission reductions is difficult as there are no source tests or other ways to measure the reductions, however, monitoring data has demonstrated that ambient air concentrations of metals reduces after the implementation of measures such as the proposed requirements in PAR 1426.

CALIFORNIA ENVIRONMENTAL QUALITY ACT

Pursuant to the California Environmental Quality Act (CEQA) and South Coast AQMD's certified regulatory program (Public Resources Code Section 21080.5, CEQA Guidelines Section 15251(l) and South Coast AQMD Rule 110), the South Coast AQMD, as lead agency, is reviewing the proposed project to determine if it will result in any potential adverse environmental impacts. Appropriate CEQA documentation will be prepared based on the analysis.

SOCIOECONOMIC ASSESSMENT

A socioeconomic impact assessment will be conducted and released for public review and comment at least 30 days prior to the South Coast AQMD Governing Board Hearing which is anticipated to be held on April 2, 2021.

DRAFT FINDINGS UNDER CALIFORNIA HEALTH AND SAFETY CODE SECTION 40727

Requirements to Make Findings

California Health and Safety Code Section 40727 requires that prior to adopting, amending or repealing a rule or regulation, the South Coast AQMD Governing Board shall make findings of necessity, authority, clarity, consistency, non-duplication, and reference based on relevant information presented at the public hearing and in the staff report.

Necessity

PAR 1426 is needed to reduce emissions of hexavalent chromium, nickel, cadmium, and lead from metal finishing operations.

Authority

The South Coast AQMD Governing Board has authority to adopt PAR 1426 pursuant to the California Health and Safety Code Sections 39002, 39650 et. seq., 40000, 40440, 40441, 40702, 40725 through 40728, 41508, and 41700.

Clarity

PAR 1426 is written or displayed so that its meaning can be easily understood by the persons directly affected by it.

Consistency

PAR 1426 is in harmony with and not in conflict with or contradictory to, existing statutes, court decisions or state or federal regulations.

Non-Duplication

PAR 1426 will not impose the same requirements as or in conflict with any existing state or federal regulations. The proposed amended rule is necessary and proper to execute the powers and duties granted to, and imposed upon, the South Coast AQMD.

Reference

By adopting PAR 1426, the South Coast AQMD Governing Board will be implementing, interpreting or making specific the provisions of the California Health and Safety Code Section 41700 (nuisance), and Federal Clean Air Act Section 112 (Hazardous Air Pollutants) and Section 116 (Retention of State authority).

COMPARATIVE ANALYSIS

California Health and Safety Code Section 40727.2 requires a comparative analysis of the proposed rule requirements with those of any Federal or District rules and regulations applicable to the same equipment or source category. The comparative analysis will be conducted and released in the draft staff report at least 30 days prior to the South Coast AQMD Governing Board Hearing on PAR 1426, which is anticipated to be held on April 2, 2021.