Title 17. California Air Resources Board

Notice of Public Hearing to Consider the Proposed Amendments to the Airborne Toxic Control Measure for Chromium Electroplating and Chromic Acid Anodizing Operations

The California Air Resources Board (CARB or Board) will conduct a public hearing at the date and time noted below to consider the proposed amendments to the Airborne Toxic Control Measure for Chromium Electroplating and Chromic Acid Anodizing Operations.

Date: January 26, 2023

Time: 9:00 A.M.

In-Person Location:

Mary D. Nichols Campus, Southern California Headquarters
California Air Resources Board | Haagen-Smit Auditorium
4001 Iowa Avenue, Riverside, California 92507

Remote Option:

Zoom

This public meeting may continue at 8:30 a.m., on January 27, 2023. Please consult the public agenda, which will be posted ten days before the January 26, 2023, Board meeting, for important details, including the day on which this item will be considered and how the public can participate via Zoom if they choose to be remote.

Written Comment Period and Submittal of Comments

In accordance with the Administrative Procedure Act, interested members of the public may present comments orally or in writing during the hearing and may provide comments by postal mail or by electronic submittal before the hearing. The public comment period for this regulatory action will begin on December 2, 2022. Written comments not submitted during the hearing must be submitted on or after December 2, 2022, and received **no later than January 17, 2023**. Comments submitted outside that comment period are considered untimely. CARB may, but is not required to, respond to untimely comments, including those raising significant environmental issues. The Board also encourages members of the public to bring to the attention of staff in advance of the hearing any suggestions for modification of the proposed regulatory action. Comments submitted in advance of the hearing must be addressed to one of the following:

Postal mail: Clerks' Office, California Air Resources Board
1001 I Street, Sacramento, California 95814

Electronic submittal: https://www.arb.ca.gov/lispub/comm/bclist.php

Please note that under the California Public Records Act (Gov. Code, § 6250 et seq.), your written and oral comments, attachments, and associated contact information (e.g., your address, phone, email, etc.) become part of the public record and can be released to the public upon request.

Additionally, the Board requests but does not require that persons who submit written comments to the Board reference the title of the proposal in their comments to facilitate review.

Authority and Reference

This regulatory action is proposed under the authority granted in California Health and Safety Code, sections 39600, 39601, 39650, 39658, 39659, and 39666 and 40 Code of Federal Regulations Part 63 Subpart N. This action is proposed to implement, interpret, and make specific Health and Safety Code sections 39600, 39601, 39601.5, 39605, 39650, 39656, 39658, 39659, 39665, 39666.

Informative Digest of Proposed Action and Policy Statement Overview (Gov. Code, § 11346.5, subd. (a)(3))

Sections Affected:

Proposed amendment to California Code of Regulations, title 17, sections 93102, 93102.1, 93102.2, 93102.3, 93102.4, 93102.5, 93102.6, 93102.7, 93102.8, 93102.9, 93102.10, 93102.11, 93102.12, 93102.13, 93102.14, 93102.15, 93102.16.

Background and Effect of the Proposed Regulatory Action:

CARB staff is proposing amendments to the Airborne Toxic Control Measure for Chromium Electroplating and Chromic Acid Anodizing Operations (Proposed Amendments). The Proposed Amendments are needed to further reduce health impacts from chrome plating facilities (which include decorative and hard chrome plating and chromic acid anodizing facilities) and to reduce exposures to hexavalent chromium in communities near these facilities.

Background

In 1986, CARB's Board identified hexavalent chromium as a toxic air contaminant (TAC)[1] under California law pursuant to Assembly Bill (AB) 1807[2] and Health and Safety Code section 39657.[3] Specifically, the Board identified hexavalent chromium as a TAC that has the potential to cause cancer with no associated threshold for cancer initiation. This means there is no level of emissions below which exposure to hexavalent chromium would be considered safe. Hexavalent chromium has the second highest cancer potency of identified TACs

[1] *CARB Identified Toxic Air Contaminants*
[2] AB 1807 (Tanner 1983) – *Toxics Air Contaminant Identification and Control*
[3] *California Health and Safety Code 39657*

(second only to dioxin) and is about 500 times more toxic than diesel exhaust particulate matter (diesel PM).[4]

Following the Board's identification of hexavalent chromium as a TAC, CARB has taken action to reduce exposures to this hazardous chemical. In 1988, the Hexavalent Chromium Airborne Toxic Control Measure for Chrome Plating and Chromic Acid Anodizing Operations (Chrome Plating ATCM) was adopted to reduce hexavalent chromium emissions from these operations. The Chrome Plating ATCM reduced overall emissions by requiring add-on pollution control devices such as High Efficiency Particulate Air (HEPA) filters, packed bed scrubbers, and chemical fume suppressants.

In 1998, the Board adopted amendments to the Chrome Plating ATCM to establish equivalency with the federal regulation for chrome plating (1995 Chrome Plating National Emission Standards for Hazardous Air Pollutants (NESHAP)). These amendments did not change the limits already in place but established separate limits for new sources.

In 2007, to further protect the public and to address improvements in emissions control technologies and emissions reduction practices, CARB adopted additional amendments to the Chrome Plating ATCM. The amendments were the most stringent and health-protective emission standards applicable to chrome plating operations in the nation.

In July 2017, Assembly Bill (AB) 617 (C. Garcia, Stats. 2017, ch. 136) was signed into California law to address local air pollution in environmental justice (EJ) communities. As mandated under AB 617, the air districts must develop and adopt a Community Emission Reduction Plan (CERP) for each selected community, in consultation with CARB, community members, and other stakeholders in the affected community. AB 617 CERPs identified chrome plating operations as a concern for some communities. Through the CERP process and EJ listening sessions, CARB staff found that people living near many of these facilities are concerned about exposure to elevated concentrations of hexavalent chromium.

Past ambient air monitoring demonstrated elevated levels of hexavalent chromium near chrome plating facilities. Evaluation of facility location has shown that sensitive receptors such as schools and residents are often located in close proximity to chrome plating facilities. Approximately nine percent of all chrome plating facilities are located within approximately 300 meters of a school. The data also show that the chrome plating facilities are often located in low income and racially-diverse communities.

Based on staff's analysis, approximately 73 percent of California's chrome plating facilities are located within Senate Bill (SB) 535 communities.[5] SB 535 requires the California Environmental Protection Agency to identify disadvantaged communities for investment opportunities, based on geographic, socioeconomic, public health, and environmental hazard criteria. To implement this statute, the CalEnviroScreen 4.0 tool[6] identifies disadvantaged communities as those that receive scores of 75 percent to 100 percent. Additionally, approximately 14 percent of chrome plating facilities are located within communities with high cumulative exposure burdens from toxic air contaminants and criteria air pollutants selected by the Board under AB 617. AB 617 directs CARB to consider communities for

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[4] *Consolidated Table of OEHHA/CARB approved health values*

[5] *Senate Bill (SB) 535 California Global Warming Solutions Act of 2006 Greenhous Gas Reduction Fund*

[6] *CalEnviroScreen/ OEHHA*

selection based on criteria outlined in the statute and the Community Air Protection Blueprint and includes prioritizing disadvantaged communities and sensitive receptor locations.

The Proposed Amendments will result in the most stringent regulation of hexavalent chromium emissions from the chrome plating industry (compared to federal standards and local district rules), with the goal of eliminating toxic hexavalent chromium emissions from the chrome plating industry in California over time. Due to the high level of toxicity of hexavalent chromium, the health impacts of exposure to hexavalent chromium, the proximity of chrome plating facilities near sensitive receptors and disadvantaged communities, and following evaluation of hexavalent chromium air monitoring data, a zero emission level is necessary to prevent an endangerment of public health. As such, the Proposed Amendments phase out the use of hexavalent chromium from the chrome plating industry in California.

Effect of the Proposed Amendments

The Proposed Amendments are intended to eliminate emissions of hexavalent chromium from chrome plating facilities and to encourage the development of alternative technologies to replace hexavalent chromium. The Proposed Amendments will also begin to address cumulative exposures to hexavalent chromium within communities that could be impacted by multiple chrome plating operations. The requirements of the Proposed Amendments become effective in stages as follows:

Starting January 1, 2024:

- No person shall construct or operate a new chrome plating facility that uses hexavalent chromium in California (applies to decorative and functional chrome plating facilities).
- Owners or operators of existing chrome plating facilities may modify their facilities after January 1, 2024, if they do not exceed permitted throughput levels in place as of January 1, 2024, and as long as any additional or modified hexavalent chromium tanks meet all applicable requirements.
- Owners or operators of chrome plating facilities that use hexavalent chromium shall implement the applicable housekeeping practices to reduce fugitive emissions.

By July 1, 2024:

- Additional hexavalent chromium containing tanks that were not covered by the 2007 ATCM become subject to the Proposed Amendments (the 2007 ATCM only covered chrome plating tanks).
- Owners or operators of functional chrome plating facilities shall control hexavalent chromium emissions from Tier II tank(s) by utilizing a tank cover, mechanical fume suppressant or other method approved by District. Alternatively, they can comply with the applicable emission limit using an add-on air pollution control device.
- Owners or operators of functional chrome plating facilities shall cover the entire surface area of Tier III tank(s) until an add-on air pollution control device that meets the applicable emission limitation has been installed as required by the Proposed Amendments.
- Owners or operators of chrome plating facilities that use hexavalent chromium shall implement the best management practices to reduce fugitive emissions.

By January 1, 2026:

- Owners or operators of functional chrome plating facilities must meet the following requirements:
    - Building enclosure requirements for Tier I tanks, Tier II tanks, Tier III tanks, and buffing, grinding, and polishing operations.
    - New emission limit of 0.00075 mg/ampere-hour (amp-hour) for each chrome plating tank that uses hexavalent chromium.
    - Best management practices that apply beginning January 1, 2026.
    - Conduct an initial source test on Tier III tank(s) to determine compliance with hexavalent chromium emission rates and continue to conduct ongoing source tests every 2 calendar years.

By January 1, 2027:

- Owners or operators of decorative plating facilities may no longer use hexavalent chromium for the purpose of decorative chrome plating unless they are granted an extension.

By January 1, 2032:

- CARB staff must complete the first technology review on alternatives to hexavalent chromium in functional plating.

By January 1, 2036:

- CARB staff must complete the second technology review on alternatives to hexavalent chromium for functional chrome plating.

By January 1, 2039:

- Owners or operators may no longer use hexavalent chromium for the purpose of functional chrome plating.

Based on the results of the technology reviews, CARB staff may recommend amendments to the phase out dates for Board consideration. CARB may also consider other changes to the sections affected, as listed on page two of this notice, or other sections within the scope of this notice, during the course of this rulemaking process.

Objectives and Benefits of the Proposed Regulatory Action:

Objectives

The main objectives of the Proposed Amendments are to: reduce emissions of hexavalent chromium prior to the phase out; eliminate emissions of hexavalent chromium from chrome plating operations in California following the phase out; minimize health impacts in communities near chrome plating facilities; and encourage the development of safer alternative technologies to replace hexavalent chromium.

Benefits

The primary benefits of the Proposed Amendments are reductions in hexavalent chromium emissions from chrome plating facilities and reductions in potential cancer risk. CARB staff estimated the emissions reductions of hexavalent chromium over the lifetime of the Proposed Amendments. The emission reduction benefits were evaluated from 2026 to 2043 to account for a period of five years after full implementation.

The emissions reduction benefits were estimated using the current emission level requirements and the emission reductions based on the Proposed Amendments. For decorative plating operations, CARB staff estimated hexavalent chromium emissions reductions of 22.3 pounds (lbs). For hard chrome plating operations, CARB staff estimated total emissions reductions of 96.4 lbs. For chromic acid anodizing operations, staff estimated total emissions reductions of 2.3 lbs over the analysis period. These emissions reductions will benefit California residents by reducing potential cancer risk from reduced exposure to hexavalent chromium. While there is no current methodology for quantifying a monetized benefit in the reduction of cancer risk, the phase out is expected to decrease the potential cancer risk from exposure to hexavalent chromium from chrome plating operations to zero by the year 2039.

In addition, as a co-benefit, the usage and emissions of Perfluoroalkyl and Polyfluoroalkyl Substances (PFAS) containing fume suppressants are expected to be reduced to zero by the time the Proposed Amendments are fully implemented due to the transition to existing alternative technologies that do not use PFAS-containing fume suppressants. Exposure to some PFAS in the environment may be linked to harmful health effects in humans and animals. These toxic substances can be found in many places such as: water, air, fish, soil, wildlife, and different consumer, commercial, and industrial products.

The phase out of hexavalent chromium is intended to protect public health and encourage the development of safer alternatives to hexavalent chromium in chrome plating operations. As more facilities begin using safer technologies, such as trivalent chromium, industry acceptance of these technologies is expected to improve. Although alternative technologies are not currently available to replace all applications in functional chrome plating operations, the Proposed Amendments are anticipated to encourage design, research, engineering, construction, and project management firms to improve trivalent chromium technology and develop new technologies. More information on alternative technologies can be found in the Chapter III of the Initial Statement of Reasons (ISOR).

Public Process

To ensure an open and transparent rulemaking, CARB staff have engaged in an extensive public process since the development of the Proposed Amendments. On June 8, 2018, CARB staff issued a regulatory notice to inform the public of the start of the rulemaking process to amend the 2007 Chrome Plating ATCM. Since that time, CARB staff conducted seven technical workgroup meetings and two public workshops to solicit stakeholder feedback and discuss regulatory concepts, costs, technology alternatives, emission inventory estimates, health and environmental impacts, compliance, and source testing results. Staff posted information regarding these technical working group meetings and workshops and

any associated materials on the Chrome Plating website and distributed notice of these meetings through the Chrome Plating List Serve, which includes over 3,400 recipients.

In addition, CARB staff conducted numerous meetings and phone calls with members of impacted communities, environmental justice advocates, local air districts, industry stakeholders (including owners and operators of chrome plating facilities, chemical fume suppressants suppliers, equipment manufacturers (OEMs), and trade associations). CARB staff also had discussions with other state agencies, the U.S. Environmental Protection Agency (U.S. EPA), and other interested parties. CARB staff visited about 30 chrome plating facilities to learn more about their business operations and to better understand potential implementation challenges associated with the Proposed Amendments. A detailed summary of all stakeholder outreach activities is included in Chapter XII and Appendix E of the ISOR.

Comparable Federal Regulations:

In January 1995, U.S. EPA promulgated the Chromium Plating NESHAP[7] (40 Code of Federal Regulations, Part 63, Subpart N). The Chromium Plating NESHAP was enacted because U.S. EPA identified chrome plating tanks as significant emitters of chromium compounds, which are hazardous air pollutants. This regulation established concentration standards for hard chrome plating facilities that could be met by the addition of forced ventilation systems. However, add-on air pollution control devices were not necessarily required in order for the hard chrome plating facilities to meet the concentration standards. In addition, the surface tension standards were established for decorative chrome plating facilities and chromic acid anodizing facilities.

On July 19, 2004, U.S. EPA amended the Chromium Plating NESHAP to allow the use of chemical fume suppressants to control chromium emissions; to provide an alternative standard for hard chrome plating tanks equipped with enclosed hoods; to modify surface tension parameter testing; to expand the definition of "chromium electroplating and anodizing" to include the ancillary hardware associated with the plating process, "add-on" control equipment, rectifier, process tanks, ductwork; and to amend the pressure drop for composite mesh pads to ±2 inches of water column instead of ±1 inch of water column.

On September 19, 2012, U.S. EPA further amended the Chromium Plating NESHAP to include revisions to the emissions limits for total chromium, incorporate housekeeping requirements to reduce emissions not released from a stack (i.e., fugitive emissions), and phase-out the use of chemical fume suppressants that use perfluorooctane sulfonic acid (PFOS).[8] PFOS is an organic chemical identified as being potentially carcinogenic[9] with health and safety concerns and is classified as one of the PFAS compounds.

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[7] *National Emission Standards for Chromium Emissions from Hard and Decorative Chromium Electroplating and Chromium Anodizing Tanks*

[8] PFOS - Perfluorooctane sulfonic acid (CAS No. 1763-23-1) is a compound that has been banned by the US EPA and was used in fume suppressants in California prior to 2016. This compound is considered to be highly toxic and persistent in the environment. EPA took action in banning this compound for use in its chrome plating regulation.

[9] *EPA Health Effect Support Document for PFOS*

An Evaluation of Inconsistency or Incompatibility with Existing State Regulations (Gov. Code, § 11346.5, subd. (a)(3)(D)):

During the process of developing the proposed regulatory action, CARB staff conducted a search of any similar regulations on this topic and concluded these regulations are neither inconsistent nor incompatible with existing state regulations.

Disclosure Regarding the Proposed Regulation

Fiscal Impact/Local Mandate Determination Regarding the Proposed Action (Gov. Code, § 11346.5, subds. (a)(5) & (6)):

The determinations of the Board's Executive Officer concerning the costs or savings incurred by public agencies and private persons and businesses in reasonable compliance with the proposed regulatory action are presented below.

Under Government Code section 11346.5, subdivisions (a)(5) and (6), the Executive Officer has determined that the proposed regulatory action would create costs or savings to any State agency, would not create costs or savings in federal funding to the State, would not create costs or mandate to any local agency or school district, whether or not reimbursable by the State under Government Code, title 2, division 4, part 7 (commencing with section 17500), or other nondiscretionary cost or savings to State or local agencies.

Cost or Savings for State Agencies:

There is no direct cost impact to state agencies. Sales tax revenue for tanks, chemicals needed for trivalent chromium plating process, add-on emission control equipment, building enclosure materials and equipment/materials needed to implement best management practices may increase, resulting in a potential increase in sales tax revenue. However, there may also be a decrease in demand for California chrome plated parts due to the Proposed Amendments which would potentially decrease sales tax revenue together with loss of corporate and personal income tax revenue in California. The total average estimated sales tax decrease to state agencies due to the Proposed Amendments from 2024 through 2043 is $92.2 million.

Other Non-Discretionary Costs or Savings on Local Agencies:

The Proposed Amendments are not expected to impose any non-discretionary costs or savings on local agencies.

Cost or Savings in Federal Funding to the State:

The Proposed Amendments are not expected to impose any costs or savings in federal funding to the State.

Housing Costs (Gov. Code, § 11346.5, subd. (a)(12)):

The Executive Officer has also made the initial determination that the proposed regulatory action will not have a significant effect on housing costs.

Significant Statewide Adverse Economic Impact Directly Affecting Business, Including Ability to Compete (Gov. Code, §§ 11346.3, subd. (a), 11346.5, subd. (a)(7), 11346.5, subd. (a)(8)):

The Executive Officer has made an initial determination that the proposed regulatory action would not have a significant statewide adverse economic impact directly affecting businesses, including the ability of California businesses to compete with businesses in other states, or on representative private persons. Although the Proposed Amendments may have a significant adverse economic impact directly affecting chrome plating businesses, these impacts would not be significant relative to the statewide economy.

Results of The Economic Impact Analysis/Assessment (Gov. Code, § 11346.5, subd. (a)(10)):

Major Regulation: Statement of the Results of the Standardized Regulatory Impact Analysis (SRIA) (Gov. Code, § 11346.3, subd. (c)):

In May 2022, CARB submitted a SRIA to the Department of Finance (DOF) for their review. To determine the economic impacts of the proposed regulatory action, CARB modeled the economic impacts of the Proposed Amendments on the California economy. Since submittal of the SRIA, some updates/revisions were made for the economic impact analysis. These updates are discussed in Chapter IX of the ISOR. The economics impacts have minor negative impacts on economic indicators. Overall, the change in the growth of jobs, Gross State Product (GSP), and output is projected to not exceed 0.04 percent of the baseline. Certain sectors are expected to experience significant costs or gains.

<u>The creation or elimination of jobs within the state.</u>

CARB staff uses Regional Economic Models, Inc. (REMI) Policy Insight Plus Version 2.5.0 to estimate the macroeconomic impacts of the Proposed Amendments on the California economy. REMI is a structural economic forecasting and policy analysis model that integrates input, output, computable general equilibrium, econometric and economic geography methodologies. Across the California economy, the REMI simulation shows small increases in job growth in 2025, 2026, and 2038 due to increases in final demand in various industries to support the phase out of hexavalent chromium and to implement add-on measures. These job increases are primarily due to increased demand for new tanks and other expenditures for trivalent chromium plating, in advance of the deadlines to comply with the phase out of hexavalent chromium in 2027 for decorative facilities and 2039 for functional facilities. These increases in job growth are followed by decreases in job growth relative to the baseline in subsequent years of the analysis due to the ongoing costs of the Proposed Amendments, indicating net job elimination due to the Proposed Amendments in the analysis period of 2024 through 2043.

<u>The creation of new businesses or the elimination of existing businesses within the state.</u>

The Proposed Amendments do not guarantee creation or elimination of businesses. However, the trend of increasing production costs, as shown in the SRIA and updated in Section IX of the ISOR, for the chrome plating industry has the potential to result in a

contraction or decrease in the number of businesses in this industry. The degree to which there will be business closures is determined by production cost increases to chrome plating facilities, consumer acceptance of trivalent chromium plated products as an alternative to hexavalent chromium plated products, and the ability of California businesses to find alternatives to hexavalent chromium plating.

Consumer responses to the Proposed Amendments may be different for decorative and functional chrome plating. While trivalent chromium is a commercially available alternative to hexavalent chromium for decorative chrome plating, customers may choose out-of-state chrome platers due to aesthetics. Some stakeholders have raised concerns that the color deposited by hexavalent chromium does not precisely match the color deposited by trivalent chromium and consumers may not accept products plated with trivalent chromium. This could result in a decrease in demand for products that are chrome plated in California following the 2027 phase out of hexavalent chromium in decorative chrome plating. Decorative platers in California will have to choose whether to invest in replacement technology, send parts out of state to be plated, move out of state, or shut down completely.

Although some replacements to hexavalent chromium in functional chrome plating are commercially available, they do not yet cover all applications for hard chrome plating and chromic acid anodizing. Other alternatives are at various stages of development but may not cover all applications of hard chrome plating and chromic acid anodizing within the time frame specified in the Proposed Amendments. Therefore, two technology reviews that are three and seven years preceding the 2039 phase out date have been added to the Proposed Amendments.

<u>The competitive advantages or disadvantages for businesses currently doing business within the state.</u>

The Proposed Amendments would impact all chrome plating facilities in California, with the phase out of hexavalent chromium for decorative chrome plating on January 1, 2027, and on January 1, 2039, for functional chrome plating. The Proposed Amendments would result in production cost increases for California chrome plating facilities. For decorative chrome plating facilities, trivalent chromium plating is currently available, but the production cost is higher. These increases in production costs, assuming they can be passed through to the chrome plating customers, may result in a competitive disadvantage relative to out of state facilities that are not subject to the Chrome Plating ATCM. In addition to cost increases, decorative chrome plating facility operators and chrome plating industry representatives have expressed concerns regarding customer acceptance of trivalent chromium plated parts. The major reason expressed by some industry stakeholders is that trivalent chromium plated parts are slightly different in color than hexavalent chromium plated parts. Customer preference for hexavalent chromium plated parts and the availability of decorative hexavalent chromium plating in other states may also result in competitive disadvantage for California decorative chrome plating facilities.

The Proposed Amendments may also result in a competitive disadvantage for California functional chrome plating facilities relative to out of state facilities. As discussed previously, some replacements to hexavalent chromium in functional chrome plating are commercially available, however, they do not yet cover all applications for hard chrome plating and chromic acid anodizing. Other alternatives are at various stages of development but may not

cover all applications of hard chrome plating and chromic acid anodizing within the time frame specified in the Proposed Amendments. Therefore, two technology reviews that are three and seven years preceding the 2039 phase out date have been added to the Proposed Amendments. Through these technology reviews, CARB will evaluate the status of alternative technologies, including technological limitations, prior to the phase out of hexavalent chromium in functional chrome plating. If the technology reviews show that alternative technology will not be available by the 2039 phase out, the ATCM can be amended by adjusting the dates or the specific requirements of the phase out accordingly. Therefore, the Proposed Amendments encourage functional chrome plating facilities in California, and businesses which supply equipment and materials to them, to invest in research and development of the trivalent chromium plating technology and other alternatives to hexavalent chromium. As discussed above, the availability of hexavalent chromium plating in other states may result in a competitive disadvantage for California chrome plating facilities.

The increase or decrease of investment in the state.

The Proposed Amendments will likely have a small impact on private investment decline in the State. Private investment due to the Proposed Amendments is expected to decrease relatively modestly during the initial years of the regulation. After 2038, there is significant increase in the magnitude of the impact due to the increase in direct costs on functional chrome plating facilities. The increased production cost is likely to increase price levels in general in the economy, force business owners to decrease relative wage levels, and, as a result, will decrease private investment. The impact from the increase in direct cost is somewhat offset by the impacts from final demand in 2038. However, all impacts in the period of analysis do not exceed 0.04 percent of estimated statewide baseline investment in any year.

The incentives for innovation in products, materials, or processes.

The Proposed Amendments would provide a strong signal for the research and development of alternative technologies to hexavalent chromium plating and incentive for alternative technology businesses to demonstrate their technologies and ensure their commercially availability. Construction companies may see an increase in business due to the conversion to alternative technology and because some chrome plating facilities will be installing add-on controls and constructing building enclosures. Further, companies who engage in source testing may see an increase in business because functional chrome plating facilities will be required to conduct source testing every two years.

The benefits of the regulations, including, but not limited to, benefits to the health, safety, and welfare of California residents, worker safety, and the state's environment and quality of life, among any other benefits identified by the agency.

The Proposed Amendments will eliminate the use of hexavalent chromium from chrome plating operations in California. Cumulatively, from 2025 to 2043, the Proposed Amendments are estimated to reduce hexavalent chromium emissions by approximately 122 pounds relative to the baseline. The baseline is estimated using the current emission level requirements and facility permitted amp-hrs. These emission reductions will benefit California residents by reducing potential cancer risk to individual residents and off-site workers near chrome plating facilities, including those located in disadvantaged

communities. The exposure reductions are expected to decrease the potential cancer risk from chrome plating operations to zero by the year 2039. In addition, the Proposed Amendments will lead to reduced occupational exposure to hexavalent chromium for on-site workers due to the phase out of hexavalent chromium from chrome plating operations.

A co-benefit of the Proposed Amendments will be the elimination of PFAS emissions from chrome plating operations. Because the Proposed Amendments phase out the use of hexavalent chromium in chrome plating operations, it will also eliminate PFAS, a toxic fluorinated compound found in many fume suppressants. Reduced exposures to these toxic chemicals will provide additional public health and air quality benefits for Californians.

The Proposed Amendments may result in financial benefits to many different industries whose products will be needed to comply with the Proposed Amendments, including but not limited to companies selling chemicals and equipment needed for trivalent chromium plating operations, add-on control suppliers, contractors for source testing, and design, engineering, and construction firms. Some of the businesses that will benefit may include small businesses.

Department of Finance Comments and Responses.

Department of Finance (DOF) comment #1: (T)he SRIA does not expect any business closures in response to the proposed regulations, nor does it discuss any potential competitive disadvantages to California's chrome facilities, despite acknowledging stakeholder concerns regarding the availability of alternatives. However, unavailable or inferior alternatives may reduce the demand for in-state chrome services and instead incentivize consumers to switch to out-of-state businesses who would still be able to utilize hexavalent chromium processes. The SRIA must include a comprehensive assessment of the potential business and employment impacts, including a discussion of these potential behavioral responses to the proposed regulation, or further justify why it is reasonable to assume these adverse impacts would be unlikely to occur.

Response: CARB staff (staff) would like to clarify that the SRIA does explain that there may be business closures in response to the Proposed Amendments. DOF's comment stating that the SRIA does not expect any business closures may be referring to page 62 of the SRIA, where staff indicate that, "the direct costs of the Proposed Amendments themselves would not be anticipated to result in significant changes in business elimination in California. The overall job and output growth impacts are small relative to the California economy, about 0.01 percent in the years of greatest impact." This section of the SRIA refers to impacts to the entire California economy, and the scenario that is analyzed assumes that trivalent chromium is a viable alternative to hexavalent chromium plating and anticipated to be available for both decorative and functional applications by the applicable phase out dates. Other scenarios were also analyzed, as discussed below.

The SRIA acknowledges on page 66 that chrome plating "facilities may choose to leave California because of increased costs." Although the Proposed Amendments do not directly require business closures, business closures are one of the potential impacts. The degree to which there will be business closures is determined by production cost increases to chrome plating facilities, consumer acceptance of trivalent chromium plated products as an alternative to hexavalent chromium plated products, and the time it takes to develop other alternatives to hexavalent chromium plating.

Consumer responses to the Proposed Amendments may be different for decorative and functional chrome plating. While trivalent chromium is a commercially available alternative to hexavalent chromium for decorative chrome plating, customers may choose out-of-state chrome platers due to aesthetics. Some stakeholders have raised concerns that the color deposited by hexavalent chromium does not precisely match the color deposited by trivalent chromium and that consumers may not accept products plated with trivalent chromium. This could result in a decrease in demand for products that are chrome plated in California following the 2027 phase out of hexavalent chromium in decorative chrome plating. Decorative platers in California will have to choose whether to invest in replacement technology, send parts out of state to be plated, move out-of-state, or shut down completely.

Although some replacements to hexavalent chromium in functional chrome plating are commercially available, they do not yet cover all applications for hard chrome plating and chromic acid anodizing. Other alternatives are at various stages of development but may not cover all applications of hard chrome plating and chromic acid anodizing within the time frame specified in the Proposed Amendments. Therefore, two technology reviews that are three and seven years preceding the 2039 phase out date have been added to the Proposed Amendments. Through these technology reviews, CARB will evaluate the status of alternative technologies, including technological and product feasibility limitations, prior to the phase out of hexavalent chromium in functional chrome plating. If the technology reviews show that there is no available alternative technology, the ATCM can be amended by adjusting the dates or the specific requirements of the phase out accordingly.

Staff analyzed four separate scenarios to illustrate the potential business and employment impacts of the Proposed Amendments. One of these scenarios assumes that trivalent chromium is a viable alternative to hexavalent chromium plating and will be available for both decorative and functional applications by the applicable phase out dates. The other three are intended to capture impacts of potential scenarios that could result from a decrease in demand if consumers do not accept trivalent chromium plated products or the available alternative technology for functional chrome plating is not available.

Staff explored several methods to model the decrease in chrome plating operations in California, including decreasing final demand for the chrome plating industry and directly reducing output (the amount of production) in the chrome plating industry. In the SRIA, staff chose to model the decrease in chrome plating in California as a decrease in final demand, as opposed to directly reducing output, because this resulted in the largest impacts to the overall economy and to the chrome plating industry and therefore better illustrates the potential range of impacts.

These impacts are the motivation behind the sensitivity analysis presented in Section 5.3.6 of the SRIA, where staff considered the impacts under potential scenarios where the Proposed Amendments would be associated with a 25, 50, and 75 percent decrease in final demand for California's chrome plating industry. This approach was taken due to the lack of specific data quantifying the reduction in demand or the amount of business closures that could result from the Proposed Amendments. Staff requested data regarding changes in demand and potential closures at numerous working group meetings, workshops, and one-on-one meetings with industry. While there is no threshold of cost increases or changes in final demand that can be used to determine business closures, the results of the SRIA can be used

to estimate the potential for business closures by applying the estimated percentage changes in employment to the estimated number of chrome plating facilities.

The sensitivity analysis captures potential impacts to both decorative and functional chrome plating facilities in the scenarios where demand decreases 25, 50, and 75 percent. For example, staff evaluated a scenario where the 2026[10] phase out of hexavalent chromium in decorative chrome plating results in a 25 percent decrease in final demand, which would be a decrease of $34 million (25 percent of the estimated sales of all decorative plating facilities) from 2026 through 2037. Additionally, to capture the impact of the 2039 phase out of hexavalent chromium in functional chrome plating, in addition to the decrease that resulted from the 2026[10] phase out for decorative chrome plating, staff evaluated a further decrease of $307 million (25 percent of the estimated sales of all chrome plating facilities, including decorative and hard chrome plating and chromic acid anodizing) from 2038 through 2043 (See Table 5.7 of the SRIA).

The following summarizes the impacts to the chrome plating industry under the various scenarios analyzed in the SRIA (See Table 1 of Appendix C-2 in the ISOR).[11] The estimated loss in employment is the maximum estimated decrease in employment within the chrome plating industry for decorative and functional facilities. For decorative facilities, the value is based on changes in employment between 2024 through 2037, when most costs are borne by decorative facilities (due to the 2026[10] phase out). The employment loss estimate for functional facilities is estimated by taking the maximum value of employment loss in the chrome plating industry from 2038 through 2043 (due to the 2039 phase out) and subtracting job decreases attributed to the decorative facilities.[12] The "Percent Change in Employment" column provides a comparison between the "Estimated Employment Loss" column and the estimated employment within the chrome plating industry (see Table 5.7 of the SRIA). The "Estimated Facility Closures" column applies the "Percent Change in Employment" to the estimated number of facilities in the chrome plating industry (see Table 5.7 of the SRIA).

- For the scenario with no additional decrease in final demand: decorative chrome plating facilities are estimated to experience a maximum loss of 7 jobs or approximately 1 percent of total employment. This corresponds to approximately 1 facility closure.
- For the scenario with 25 percent decrease in final demand: decorative chrome plating facilities are estimated to experience a maximum loss of 122 jobs or approximately 14 percent of total employment. This corresponds to approximately 7 facility closures.
- For the scenario with 50 percent decrease in final demand: decorative chrome plating facilities are estimated to experience a maximum loss of 240 jobs or approximately

[10] When the SRIA was conducted, it was based on a 2026 phase out. However, the phasing out for decorative chrome plating has since been changed to 2027, which will push back the impacts an additional year.
[11] Note that Table 5.14 in the SRIA has been corrected. Please see Table IX.3 in the ISOR.
[12] In the main scenario, larger negative impacts begin in 2039 due to the phase out of hexavalent chromium in functional plating. In the sensitivity analysis, the larger negative impacts begin starting in 2038. This is because in 2038, there are positive impacts to employment and output due to increased final demand for trivalent chrome plating equipment and installation that counterbalance the increased costs to the chrome plating industry. In the sensitivity analysis, the negative impact of decreased final demand in the chrome plating industry outweighs these positive impacts that occur in 2038. As described in the SRIA, staff made a conservative assumption that chrome plating facilities made the same levels of investment to convert to trivalent chromium to comply with the Proposed Amendments in the main scenario and sensitivity scenarios.

27 percent of total employment. This corresponds to approximately 14 facility closures.

- For the scenario with 75 percent decrease in final demand: decorative chrome plating facilities are estimated to experience a maximum loss of 359 jobs or approximately 41 percent of total employment. This corresponds to approximately 21 facility closures.
- For the scenario with no additional decrease in final demand: functional chrome plating facilities are estimated to experience a maximum loss of 193 jobs or approximately 5 percent of total employment. This corresponds to approximately 3 facility closures.
- For the scenario with 25 percent decrease in final demand: functional chrome plating facilities are estimated to experience a maximum loss of 1,053 jobs or approximately 28 percent of total employment. This corresponds to approximately 18 facility closures.
- For the scenario with 50 percent decrease in final demand: functional chrome plating facilities are estimated to experience a maximum loss of 1,938 jobs or approximately 52 percent of total employment. This corresponds to approximately 32 facility closures.
- For the scenario with 75 percent decrease in final demand: functional chrome plating facilities are estimated to experience a maximum loss of 2,836 jobs or approximately 76 percent of total employment. This corresponds to approximately 47 facility closures.

For example, staff estimate that, if there was an additional 75 percent decrease in final demand for chrome plating, this could be associated with a decrease of 359 decorative chrome plating jobs and 2,836 functional chrome plating jobs. These decreases in employment would represent a 41 percent decrease in employment at decorative chrome plating facilities and a 76 percent decrease in employment at functional chrome plating facilities. If the decreases in employment were matched by similar percentages of facility closures, this would be associated with the closure of 21 decorative chrome plating facilities and 47 functional chrome plating facilities.

Staff would also like to note that the SRIA discloses the competitive disadvantage to California chrome platers relative to out-of-state facilities due to increased costs (Section 5.3.8, Competitive Advantage or Disadvantage). Staff acknowledges that there could be competitive disadvantages relative to out-of-state facilities, which will still be able to utilize hexavalent chromium. For both decorative and functional facilities, there could be a competitive disadvantage because prices may increase if California chrome platers pass on the cost of converting to trivalent chromium to consumers. Out-of-state facilities that did not incur the costs to transition to alternative technology may be able to offer lower prices to consumers, which would cause a competitive disadvantage for California chrome platers. In addition, for decorative chrome plating facilities, the color difference between hexavalent and trivalent chromium plated parts may cause competitive disadvantage for California decorative chrome platers if customers prefer the color of hexavalent chromium plated parts.

Some commenters have expressed concerns that, due to the forward-looking nature of contracts for chrome plating services (which some industry representatives have claimed can span years to a decade), customers may not wait for the results of the technology review(s) before securing contracts with out-of-state facilities. The lack of certainty that California

facilities will be able to perform hard chrome plating or chromic acid anodizing using hexavalent chromium may pose a competitive disadvantage to California facilities before hexavalent chromium is phased out. It is not possible to quantify the impacts due to the speculative nature of this issue and due to lack of data regarding the timing and number of contracts that could be impacted and the uncertainty regarding the potential customer responses to the Proposed Amendments.

DOF comment #2: (T)he SRIA does not clearly disclose how inflation is incorporated into the analysis, however, costs may be different under higher assumed inflation rates. The brief qualitative discussion of the implications of higher inflation that is currently included in the SRIA should be expanded to clearly illustrate how costs are impacted by incorporating Finance's most recent inflation projections at the time of the analysis, as required.

Response: For the purposes of comparison in the SRIA, all costs and benefits are reported in constant 2021 dollars (SRIA at page 16). Cost and benefit values are converted to 2021 dollars, when necessary, using the annual values for California CPI-U published by the Department Industrial Relations, Office of the Director.[13] This was used to convert the following costs described in the SRIA:

- The decorative chrome plating replacement cost and the non-electrical operating cost in decorative and functional facilities are converted from 2020 dollar to 2021 dollar using CPI-U.
- The costs for building enclosures, best management practices, and housekeeping upgrades were converted from 2018 dollars to 2021 dollars.

DOF's Consumer forecasts of CPI-U, released with the 2022-23 May Revision to the Governor's Budget, estimates that the prices of goods and services purchased by urban consumers rose by 6.98 percent from 2021 to 2022 and will continue to rise by approximately 3 percent per year from 2022 through 2025.[14] If the SRIA were to present costs in constant 2022 dollars using DOF's forecasted values of CPI-U, the cost of the Proposed Amendments would be $664.6 million 2022 dollars before tax and amortization, compared with $640.2 million 2021 dollars before tax and amortization.

Inflation is also incorporated into the analysis through adjusting the REMI Model's National Control (model baseline) with DOF's forecasts of the national Personal Consumption Expenditures Index. The PCE-Price Index reflects the price level of a region. It is used to deflate nominal personal income to real personal income. The SRIA uses the forecast of National Deflators published with the 2022-23 Governor's Budget, which was the most recent data at the time of the analysis.[15] Since the completion of the analysis, DOF has published newer forecasts with the 2022-23 May Revision to the Governor's Budget. Staff has updated the REMI National control to account for the higher levels of inflation than what was assumed previously. In addition, staff have updated the REMI model National and Regional controls to incorporate DOF's latest forecasts for U.S. Real Gross Domestic Product, income,

[13] California Department of Industrial Relations, Office of the Director, California Consumer Price Index, California Consumer Price Index Chart. Accessed June 28, 2022.
[14] California Department of Finance, Consumer Price Index, Calendar Year averages: from 1950, May 2022.
[15] California Department of Finance. Economic Research Unit. National Deflators: Calendar Year averages: from 1929, April 2021. Sacramento: California. January 2022.

and employment, as well as California civilian employment by industry, updated with the 2022-23 May Revision to the Governor's Budget.

Business Report (Gov. Code, §§ 11346.5, subd. (a)(11); 11346.3, subd. (d)):

In accordance with Government Code sections 11346.5, subdivisions (a)(11) and 11346.3, subdivision (d), the Executive Officer finds the reporting requirements of the proposed regulatory action which apply to businesses are necessary for the health, safety, and welfare of the people of the State of California.

Cost Impacts on Representative Private Persons or Businesses (Gov. Code, § 11346.5, subd. (a)(9)):

The Proposed Amendments would not result in any direct costs to individuals. However, staff anticipates the Proposed Amendments would result in indirect costs to individuals to the extent that compliance costs are passed through to consumers of chrome plating services.

Effect on Small Business (Cal. Code Regs., tit. 1, § 4, subds. (a) and (b)):

The Executive Officer has also determined under California Code of Regulations, title 1, section 4, that the proposed regulatory action would affect small businesses. The methodology and full details for estimating the cost impact to a small business is provided in Chapter IX of the ISOR.

Consideration of Alternatives (Gov. Code, § 11346.5, subd. (a)(13)):

Before taking final action on the proposed regulatory action, the Board must determine that no reasonable alternative considered by the Board, or that has otherwise been identified and brought to the attention of the Board, would be more effective in carrying out the purpose for which the action is proposed, would be as effective and less burdensome to affected private persons than the proposed action, or would be more cost-effective to affected private persons and equally effective in implementing the statutory policy or other provisions of law.

Staff considered three alternatives to the Proposed Amendments. As explained in Chapter X of the ISOR, no alternative proposal was found to be less burdensome and equally effective in achieving the purposes of the Proposed Amendments in a manner that ensures full compliance with the authorizing law. Staff have not identified any reasonable alternatives that would lessen any adverse impact on small business.

Environmental Analysis

CARB, as the lead agency for the Proposed Amendments, has prepared a draft environmental analysis (EA) under its certified regulatory program (Cal. Code of Regs., tit. 17, sections 60000 through 60008) to comply with the requirements of the California Environmental Quality Act (CEQA; Public Resources Code section 21100 et seq.). The draft EA assesses the potential for significant adverse and beneficial environmental impacts

associated with the proposed actions and provides a programmatic environmental analysis of the reasonably foreseeable compliance responses that could result from implementation of the Proposed Amendments.

The draft EA concluded implementation of the Proposed Amendments could result in less than significant impacts, or no impacts, to the following: aesthetics, agriculture and forestry resources, biological resources, energy, geology and soils, greenhouse gas emissions, hydrology and water quality, land use and planning, mineral resources, population and housing, public services, recreation, transportation, tribal cultural resources, utilities and service systems, wildfire. The draft EA concluded implementation of the Proposed Amendments could result in potentially significant adverse impacts to the following: air quality, cultural resources, hazards and hazardous materials, and noise and vibration.

The potentially significant and unavoidable adverse impacts are primarily related to short-term construction-related activities and long-term operations. This explains why some resource areas are identified above as having both less-than-significant impacts and potentially significant impacts. Please refer to the draft EA for further details.

The draft EA, included as Appendix D to the ISOR, is entitled Draft Environmental Analysis Prepared for the Proposed Amendments to the Airborne Toxic Control Measure for Chromium Plating and Chromic Acid Anodizing Operations. Written comments on the draft EA will be accepted during a 45-day public review period starting on December 2, 2022, and ending on January 17, 2023.

Special Accommodation Request

Consistent with California Government Code section 7296.2, special accommodation or language needs may be provided for any of the following:

- An interpreter to be available at the hearing;
- Documents made available in an alternate format or another language; and
- A disability-related reasonable accommodation.

To request these special accommodations or language needs, please contact the Clerks' Office at *cotb@arb.ca.gov* or (916) 322-5594 as soon as possible, but no later than ten business days before the scheduled Board hearing. TTY/TDD/Speech to Speech users may dial 711 for the California Relay Service.

Consecuente con la sección 7296.2 del Código de Gobierno de California, una acomodación especial o necesidades lingüísticas pueden ser suministradas para cualquiera de los siguientes:

- Un intérprete que esté disponible en la audiencia;
- Documentos disponibles en un formato alterno u otro idioma; y
- Una acomodación razonable relacionados con una incapacidad.

Para solicitar estas comodidades especiales o necesidades de otro idioma, por favor llame a la oficina del Consejo al *cotb@arb.ca.gov* o (916) 322-5594 lo más pronto posible, pero no menos de 10 días de trabajo antes del día programado para la audiencia del Consejo. TTY/TDD/Personas que necesiten este servicio pueden marcar el 711 para el Servicio de Retransmisión de Mensajes de California.

Agency Contact Persons

Inquiries concerning the substance of the proposed regulatory action may be directed to the agency representative Eugene Rubin, Staff Air Pollution Specialist, Toxics Control Section, at (916) 287-8214 or *Eugene.Rubin@arb.ca.gov* or (designated back-up contact) Greg Harris, Manager, Toxics Control Section, at (279) 208-7540 or *Greg.Harris@arb.ca.gov*.

Availability of Documents

CARB staff has prepared a Staff Report: Initial Statement of Reasons (ISOR) for the proposed regulatory action, which includes a summary of the economic and environmental impacts of the proposal. The report is entitled: The Proposed Amendments to the Airborne Toxic Control Measure for Chromium Electroplating and Chromic Acid Anodizing Operations.

Copies of the ISOR and the full text of the proposed regulatory language, in underline and strikeout format to allow for comparison with the existing regulations, may be accessed on CARB's website listed below, on November 29, 2022. Please contact Chris Hopkins, Regulations Coordinator, at *Chris.Hopkins@arb.ca.gov* or (279) 208-7347 if you need physical copies of the documents. Because of current travel, facility, and staffing restrictions, the California Air Resources Board's offices have limited public access. Pursuant to Government Code section 11346.5, subdivision (b), upon request to the aforementioned Regulations Coordinator, physical copies would be obtained from the Public Information Office, California Air Resources Board, 1001 I Street, Visitors and Environmental Services Center, First Floor, Sacramento, California, 95814.

Further, the agency representative to whom nonsubstantive inquiries concerning the proposed administrative action may be directed is Chris Hopkins, Regulations Coordinator, (279) 208-7347. The Board staff has compiled a record for this rulemaking action, which includes all the information upon which the proposal is based. This material is available for inspection upon request to the contact persons.

Hearing Procedures

The public hearing will be conducted in accordance with the California Administrative Procedure Act, Government Code, title 2, division 3, part 1, chapter 3.5 (commencing with section 11340).

Following the public hearing, the Board may vote on a resolution directing the Executive Officer to: make any proposed modified regulatory language that is sufficiently related to the originally proposed text that the public was adequately placed on notice and that the regulatory language as modified could result from the proposed regulatory action, and any additional supporting documents and information, available to the public for a period of at least 15 days; consider written comments submitted during this period; and make any further modifications as may be appropriate in light of the comments received available for further public comment. The Board may also direct the Executive Officer to: evaluate all comments received during the public comment periods, including comments regarding the Draft Environmental Analysis, and prepare written responses to those comments; and present to the Board, at a subsequently scheduled public hearing, the final proposed regulatory

language, staff's written responses to comments on the Draft Environmental Analysis, along with the Final Environmental Analysis for action.

Final Statement of Reasons Availability

Upon its completion, the Final Statement of Reasons (FSOR) will be available and copies may be requested from the agency contact persons in this notice, or may be accessed on CARB's website listed below.

Internet Access

This notice, the ISOR and all subsequent regulatory documents, including the FSOR, when completed, are available on CARB's website for this rulemaking at https://ww2.arb.ca.gov/rulemaking/2023/chromeatcm2023

California Air Resources Board

Steven S. Cliff, Ph.D.
Executive Officer

Date: November 15, 2022

The energy challenge facing California is real. Every Californian needs to take immediate action to reduce energy consumption. For a list of simple ways you can reduce demand and cut your energy costs, see CARB's website (www.arb.ca.gov).