

California wants to ban the toxic chemical that gives chrome its classic shine

January 26 2023, by Tony Briscoe



Credit: Pixabay/CC0 Public Domain

For decades, hexavalent chromium has provided the silvery showroom finish to countless consumer products, from automobile bumpers and grilles to kitchen faucets and light fixtures. It has also served as an

indispensable rust-resistant coating for aviation components, such as airplane landing gear.

But while hardened [chrome](#) is harmless, the airborne emissions from the plating process are more than 500 times more toxic than diesel exhaust, and pose a substantial cancer risk to surrounding communities.

In light of these risks, the California Air Resources Board has proposed a landmark ban on the use of so-called chrome-6 in decorative plating by 2027, saying the health hazards of the plating process are borne disproportionately by low-income communities. The rule would also prohibit the chemical's use for industrial durability—such as providing anti-corrosive coatings—by 2039.

The proposal has drawn praise from clean air advocates but has also sent shock waves through the state's auto restoration and customization industries. It could also force California aerospace companies and defense contractors to accelerate research into less toxic alternatives.

"We would be the first jurisdiction in the world to phase out hexavalent chromium in the plating industry," said Jane Williams, executive director of California Communities Against Toxics. "Even the EU hasn't done it because they haven't found a substitute for crucial uses. We would be working with the industry and the military to actually identify new coatings. That's precedent setting."

The proposal, however, has been blasted by the chrome plating industry. Bryan Leiker, executive director of the Metal Finishing Association of California, said that these facilities are already required to comply with the strictest regulations in the nation, and that an outright ban would only compel businesses and jobs to leave California.

"California is trying to force something to happen that's not ready to

happen," Leiker said. "The consequences are going to be disastrous, because you can lose an entire industry."

The Air Resources Board will hold the public hearing on the matter at 8:30 a.m. Friday in Riverside. Board members will vote on the final proposal in May.

In California, there are over 110 chrome-plating facilities, and more than 70% of them are located in disadvantaged communities. Los Angeles County in particular—with its abundance of car enthusiasts and top aerospace companies—has the greatest concentration of chrome platers in the nation.

From hot rods to low riders, life in Southern California is still synonymous with classic and customized cars of yesteryear, and chrome's legacy remains strong. Much of that has to do with the social influence chrome once held in a car-centric region that eagerly adapted itself to automobiles.

"Because you were in your car so much, it was another way of greeting the world," said Leslie Kendall, chief historian of the Petersen Automotive Museum in Los Angeles. "It was like your ultimate outer layer of clothing. Chrome on a car was like a brooch for a lady's coat, something that embellished the form."

But the mirror-like sheen on wheels, bumpers and grilles comes at a cost. This luster is achieved by dipping auto parts in industrial tanks with a liquid solution containing a potent carcinogen.

An electric current is sent through the tank, causing hexavalent chromium to adhere to the part. At the same time, however, voltage also causes the solution to bubble, releasing chromium-laden vapors as they burst.

Many of these operations try to reduce the vapors by adding chemical fume suppressants to the chromium solution. But these suppressants contain PFAS, another highly toxic compound, which is discharged into local waterways.

California identified hexavalent chromium as a toxic air contaminant that has no safe amount of exposure in 1986. Over time, people have become more concerned about the chemical's health consequences.

In 1998, [community groups](#) called for an investigation into a chrome-plating operation near Suva Elementary and Intermediate schools in Bell Gardens.

The groups suspected that chrome emissions had contributed to numerous health problems for children, teachers and residents. Twenty-two students and six teachers at the schools had been diagnosed with cancer in eight years, organizers say.

Several families, including those whose children died from cancer, filed a lawsuit against Chrome Crankshaft, a company that plated locomotive parts. The suit was later settled.

Since then, the state has adopted the nation's most stringent emission standards for chrome plating operations.

Today, about 9% of chrome platers in California operate within 1,000 feet of schools.

The metal finishing industry has argued its emissions pale in comparison with others'.

California's 58 large chrome platers produced less than 1% of hexavalent chromium pollution, according to state data. The vast majority comes

from burning fossil fuels. Cement production and lumber industries also emit more.

"We're less than 1% of emissions statewide, but we're the only industry facing a ban right now," Leiker said.

Although the amount of total emissions may seem insignificant, state regulators and environmental advocates contend chrome plating facilities can drastically elevate concentrations in the areas immediately surrounding them, posing a long-term health threat.

The Air Resources Board hopes the proposed rule will encourage these facilities to switch to trivalent chromium, a far less toxic alternative, which has been available as a substitute since the early 1990s.

However, trivalent chromium has not been widely used in the decorative plating industry because its darker color is similar to stainless steel, an aesthetic that has not appealed to California car enthusiasts striving to recreate the high-gloss sheen of the 20th century.

"It's a different color and it just wouldn't look right on these older cars," said Elayne Bendel, who is on the board of the Lincoln and Continental Owner's Club Western Region. "It would never match what came out of the factory, let's say, in 1960 or sometime back there."

If California's chrome proposal is adopted, the Mission Viejo resident said, classic car owners here would probably have to send their parts out of state to have them chromed, making a difficult hobby even more expensive.

"There's a scarcity of labor, a scarcity of parts, and if the ability to get good chrome locally goes away, then that's just another aspect of the difficulty with owning these cars," Bendel said.

But chrome has been used for more than simply embellishing cars.

California is home to some of the world's largest aerospace companies and defense contractors. Trivalent chromium coating has not been proved to meet U.S. Department of Defense specifications for thickness, hardness and corrosion resistance.

"The Department of Defense is looking into less toxic alternative coatings to [hexavalent chromium](#), including applications via additive manufacturing processes," Navy Lt. Cmdr. Timothy Gorman, a Pentagon spokesperson, said in a statement. "We will continue to work with our public and private industry partners and communicate on potential changes in this area."

The California Air Resources Board acknowledges that the rule would have wide-ranging effects, and estimates that several thousand jobs could be lost in manufacturing and other sectors related to chrome plating.

The chrome plating facilities that remain will incur significant costs to transition to trivalent chromium plating, which the air board estimates would be around \$323,000 for decorative platers and \$4 million for industrial platers.

"It's completely new equipment, new solution, new process and new permitting," said Leiker, the metal finishing director. "It's not as simple as draining the tank and putting in the new solution."

If the rule is approved, the state Legislature has allocated \$10 million a year, for the first three years, to assist chrome platers with the transition.

The public can view or register to participate in the Air Resources Board meeting online.

2023 Los Angeles Times.

Distributed by Tribune Content Agency, LLC.

Citation: California wants to ban the toxic chemical that gives chrome its classic shine (2023, January 26) retrieved 17 July 2024 from <https://phys.org/news/2023-01-california-toxic-chemical-chrome-classic.html>

This document is subject to copyright. Apart from any fair dealing for the purpose of private study or research, no part may be reproduced without the written permission. The content is provided for information purposes only.