



Chrome Plating ATCM Amendments

Technical Working Group #2

12/17/2020

Meeting Agenda

- Introductions
- Working Group #1 summary
- Facilities inventory
- Emissions inventory
- Non-plating tanks
- Existing operational practices and control levels
- Questions

Working Group #1 Summary

- Chrome Plating Regulations (last amendments)
 - ATCM (2007), NESHAP (2012), SC Rule 1469 (2018)
- Data Gathering
 - Facility survey and site visits
 - Source testing
 - Ambient monitoring
- Initial ATCM amendment concept
 - Exploring role of alternative technology in reducing hexavalent chrome emissions

Facility Inventory

Number of facilities for Plating Type/District	Decorative	Chromic Acid Anodizing	Hard	Trivalent	Multiple plating types	Total
SCAQMD	41	33	30	3	4	111
BAAQMD	5	-	6	-	-	11
SJVAPCD	6	-	3	1	-	10
Others	5	1	2	1	-	9
Total	57	34	41	5	4	141

Decorative Plating

Facility Size	# of Facilities	# of Facilities <100m from Sensitive Receptor	# of Facilities >100m from Sensitive Receptor
<50,000 amp-hrs	24	9	15
<1,000,000 amp-hrs	14	5	9
>1,000,000 amp-hrs	14	9	5
Unknown throughput	5	0	5
TOTAL	57	23	34

Hard Plating

Facility Size	# of Facilities	# of facilities <100m from sensitive receptor	# of facilities >100m from sensitive receptor
<100,000 amp-hrs	4	2	2
<10,000,000 amp-hrs	9	1	8
>10,000,000 amp-hrs	23	6	17
Unknown throughput	5	4	1
TOTAL	41	13	28

Chromic Acid Anodizing

Facility Size	# of Facilities	# of facilities <100m from sensitive receptor	# of facilities >100m from sensitive receptor
<50,000 amp-hrs	6	0	6
<1,000,000 amp-hrs	9	4	5
>1,000,000 amp-hrs	15	9	6
Unknown throughput	4	1	3
TOTAL	34	14	20

Electroplating Tank Inventory

Process Type	# of tanks at SCAQMD facilities (from District Survey)	# of tanks at BAQMD facilities (from CARB survey)	# of tanks at SJVAPCD facilities (from CARB survey)	# of tanks at Other District facilities (from CARB Survey)	Total
Hard Plating	132	17	3	4	161
Decorative Plating	56	3	8	8	75
Trivalent Plating	12	0	2	1	15
Chromic Acid Anodizing	37	0	0	1	38
TOTAL	237	20	13	14	284

Emissions

- Potential emissions based on maximum permitted throughput
- Actual emissions based on 2019 data
 - Does not include fugitive emissions (i.e. nonplating tanks, buffing/grinding/polishing)

Potential Emissions

- Based on permitted amp-hrs
 - 10.71 lb hex chrome/year
 - Based on ATCM emission limits for controlled plating tanks
 - 0.01 mg/amp-hr for tanks with fume suppressant only
 - 0.0015 mg/amp-hr for tanks with point source controls

Actual Emissions

- 2019 Actual Emissions
 - 2.8 pounds of hexavalent chrome in 2019
 - 80% of facilities
 - Remaining facilities had a potential to emit of 1.1 lbs
 - Used 2019 actual ampere hours reported
 - Based on ATCM emission limits for controlled plating tanks
 - 0.01 mg/amp-hr for tanks with fume suppressant only
 - 0.0015 mg/amp-hr for tanks with point source controls

Chrome Containing Non-Plating Tanks

- Chrome plating and chromic acid anodizing facilities subject to the ATCM were found to have hex chrome containing tanks that were not subject to the ATCM
 - Facilities were operating in compliance with the existing ATCM and South Coast 1469
- Tanks associated with a chromium electroplating or chromic acid anodizing which contain chromium, but are not rectified are currently not subject to the ATCM

Chrome Containing Non-Plating Tanks

- Seal tanks – closes the porous surface generated during the anodizing process, can contain sodium dichromate
- Passivation tanks – forms a nonreactive surface film that inhibits corrosion, can use sodium dichromate
- Chromate conversion tanks – applies a thin protective coating to surface, uses chromate



Other Tanks

- Drag-out/Rinse tanks – rinse parts after chrome plating, concentration of chrome can increase over time



- Stripping tanks – remove old chrome layer off of parts, concentration of chrome can increase over time, some tanks are electrolytic

Tanks not under ATCM Requirements

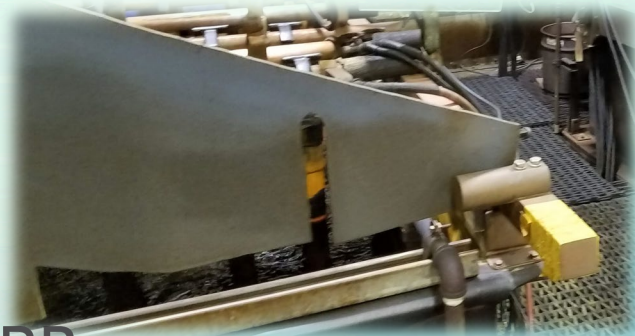
Tank Location	Non-Plating Chrome Containing Tanks*
SCAQMD	114
BAAQMD	7
SMAQMD	3
SJVAPCD	3

*based on CARB and SCAQMD surveys; not all facilities responded

- Control of non-plating tanks being considered
- Controls would likely be based on:
 - Chrome concentration
 - Tank temperature
 - Agitation method

Current Housekeeping Practices

- Based on CARB survey responses, facilities currently:
 - Use HEPA vacuum, wet mop/cloth, or wet wash systems
 - Cleaning frequencies range from after each shift to weekly
 - Use nonabsorbent materials for flooring
 - Use spill containment systems and spill kits for spill clean up



Additional Measures

- CARB survey asked facilities to describe additional measures taken to control emissions
- Most common measures:
 - Waste water recovery, including closed loop systems
 - Tank covers
 - Splash protection



Additional Measures (cont.)

- Control equipment only operating when sufficient numbers of parts to be plated
- Additional parameter monitoring for control equipment
- Use of Permanent Total Enclosures
- Ion exchange systems

Next Steps

- Continue to explore feasibility of trivalent plating
 - Discussions with NASF and DOD experts
- Working Group #3 – early 2021
 - Trivalent feasibility discussion
 - Additional control options
- Draft rule concepts and language – early 2021
 - Working Group #4 to follow

CARB Contacts

- Eugene Rubin (Staff Lead)
 - Eugene.Rubin@arb.ca.gov
 - (916)-323-0006
- Maria Vacaru (Staff)
 - Maria.Vacaru@arb.ca.gov
 - 916-322-7433
- Robert Krieger (Manager)
 - Robert.Krieger@arb.ca.gov
 - 916-323-1202
- [Subscribe to the Chrome Plating ATCM Mailing List](#)