

Working Group Meeting #2

**Proposed Amended
Rule (PAR) 1426 –
Emissions from
Metal Finishing
Operations**

South Coast AQMD

August 19, 2020

Zoom meeting link:

<https://scaqmd.zoom.us/j/98321766380>

Join via teleconference:

Dial-in Number: (669) 900-6833

Meeting ID: 983 2176 6380

Passcode: 329062



Agenda

- Summary of Working Group #1
- Response to comments
- Fugitive emissions from tanks
- Rule Concepts: Purpose and applicability
- Next steps

Summary of Working Group #1

- Background on metal finishing
- Findings from recent Rule 1469 amendments
- Overview of Rule 1426 and comparison to Rule 1469
- Approach to amending Rule 1426:
 - PAR 1426 for fugitive source emissions
 - Proposed Rule (PR) 1426.1 for hexavalent chromium point source emissions
 - PR 1426.X for other metal TAC point source emissions
- Rule development process

Response to Comments

Comment #1

Other metals have higher plating efficiency than chromium so additional controls may not be needed

Staff Response:

- Other metals have plating efficiencies higher than chromium
 - Plating efficiency is used to estimate emissions during permit evaluation of electrolytic tanks
- Fugitive emissions can still occur from these non-chromium electrolytic tanks from
 - Air-sparging and heating which generate emissions
 - Tank solution that leaves the tank which also contributes to emissions from splashing, dragout, etc.

Comment #2

What is the need for fugitive emissions controls for non-chromium metals?

Staff Response:

- Requirements for both fugitive and point sources are needed to address metal Toxic Air Contaminants (TAC) emissions
 - Electrification, air-sparging, and heating generate emissions
 - Dried tank solutions outside of the tank can become sources of fugitive emissions
- Current Rule 1426 has basic housekeeping and limited air-sparging restrictions to minimize metal TAC emissions
 - PAR 1426 will include requirements to minimize fugitive metal TAC emissions, consistent with other metal TAC particulate rules
 - Future PR 1426.1 and PR 1426.X will address point source control requirements

Fugitive Emissions from Tanks

Fugitive Emissions

- Fugitive emissions can occur due to inadequate or improper housekeeping measures or cross drafts, which allows emissions to escape
- Fugitive emissions can be created when tank solution leaves the tank or when tank emissions are not captured by point source controls
- Fugitive emissions can be generated in areas throughout the metal finishing process
- Specific measures implemented in these areas are effective in minimizing the generation of fugitive emissions

Four Key Areas of Fugitive Emissions

- In each key area, facilities have implemented measures to minimize fugitive emissions

1 Fugitive emissions from electrified, air-sparged, and heated tanks

2 Tank solution leaves tank and dries on surfaces and floors creating metal particulates that can become fugitive emissions

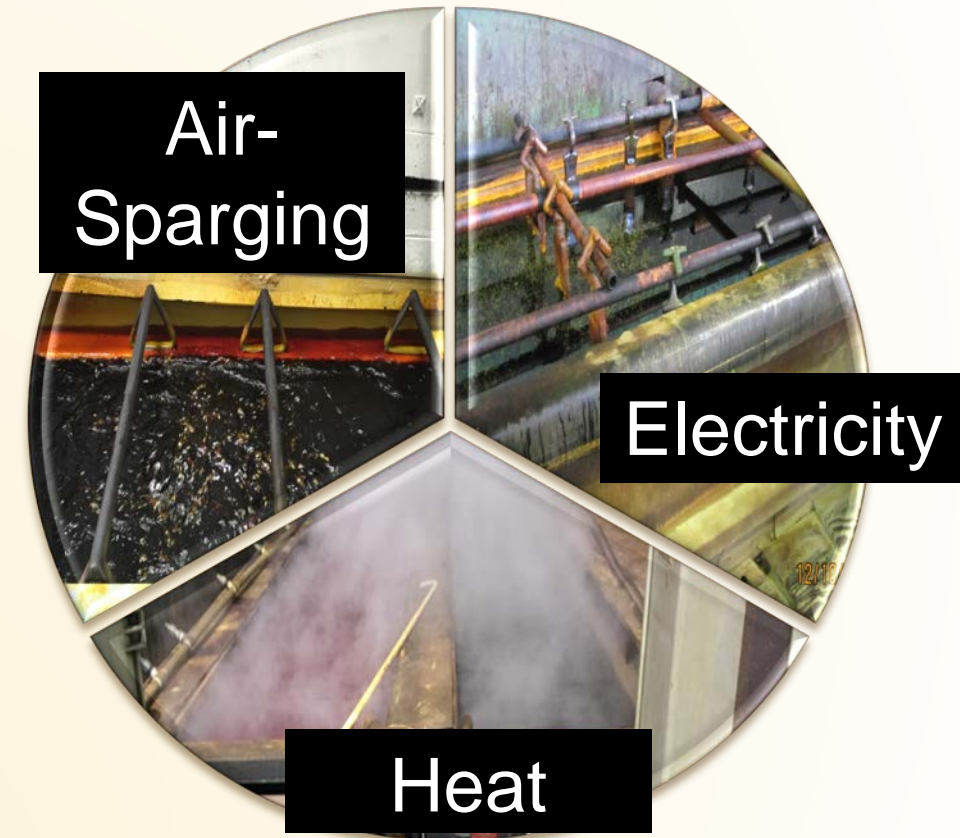
3 Movements or openings in building can carry fugitive emissions out

4 Certain practices on how parts are cleaned, materials are stored, and handling of parts can lead to fugitive emissions

1

Fugitive emissions from electrified, air-sparged, and heated tanks

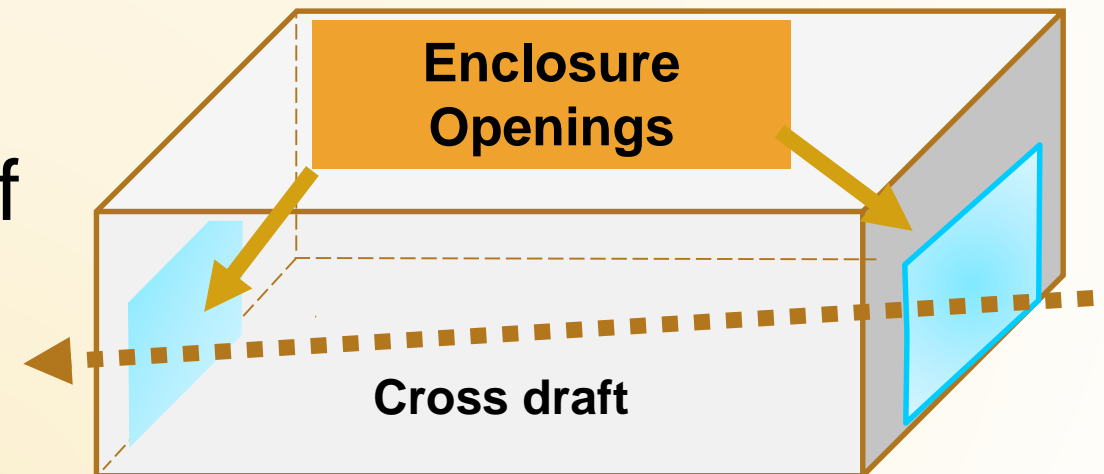
- At the previous Working Group Meeting, staff discussed the three main contributors to tank emissions: air sparging, electrolytic, and heat
- Emissions from tanks with a metal TAC that are not captured or controlled may become fugitive based on the following factors:
 - Lack of pollution controls (not required)
 - Improper maintenance or operation of pollution controls
 - Other influences that may affect 100% collection efficiency such as cross draft



1

Fugitive emissions from electrified, air-sparged, and heated tanks (Continued)

- Air currents created from cross drafts or mechanical methods can:
 - Cause fugitive emissions from uncontrolled heated, air-sparged, or electrified tanks
 - Interfere with the operation of pollution controls resulting in fugitive emissions



1

Fugitive emissions from electrified, air-sparged, and heated tanks (Continued)

- Two categories of measures to address fugitive emissions from tanks:
 - Maintenance of pollution controls
 - Containment of fugitive emissions from tanks
- Measures for routine maintenance of pollution controls for tanks to minimize fugitive emissions include:
 - Cleaning air slots for pollution controls
 - Parameter monitoring (e.g. pressure drops, slot velocity)
 - Replacing filters
 - Conducting smoke tests



1

Fugitive emissions from electrified, air-sparged, and heated tanks (Continued)

- Measures to contain fugitive emissions from tanks:
 - Operating in an enclosure with limited openings
 - Installing barriers that restrict air from passing through building openings (e.g. doors or strip curtains)
 - Limiting use of compressed air near tanks
 - Using a barrier to eliminate impacts to the collection efficiency
 - Removing or repositioning comfort fans near tanks
 - Removing or repositioning roof fans above tanks



2

Tank solution leaves tank and dries on surfaces and floors creating metal particulates that can become fugitive emissions

- Spray rinsing, dragout, or agitation of tanks can displace tank solution
- Tank solution that is displaced can accumulate on surfaces such as floors, equipment, or tank lips
- Measures to minimize solution from being displaced from tank:
 - Positioning tanks and installing drip trays or splash guards to minimize accumulation of tank solution on floors
 - Containing materials below the lip of the tank to prevent solution leaving the tank



2

Tank solution leaves tank and dries on surfaces and floors creating metal particulates that can become fugitive emissions (*Continued*)

- Tank solution that accumulates on floors and surfaces can dry out leaving metal particulate that can become fugitive emissions
- Measures to minimize the accumulation of liquids with metal TACs on floors and surfaces:
 - Immediate cleaning of spills
 - Routine cleaning of surfaces where tank solutions can accumulate (e.g. walkways and tank lips)
 - Collecting tank solution in secondary containment below walkways
 - Prohibiting fabric or carpet flooring materials for ease of cleaning



3

Movement or openings in building can carry fugitive emissions out

- Facilities with poor housekeeping may have buildup of dry solids on floors and walkways
- Dried solids can be crushed and be tracked outside the building by foot traffic or movement of equipment
- Measures to minimize track-out include routine cleaning using approved cleaning methods such as of wet cleaning methods and HEPA vacuuming



4

Certain practices on how parts are cleaned, materials are stored, and handling of parts can lead to fugitive emissions

- Storage and handling of materials, parts, and cleaning materials that have metal particulate dust can be a source of fugitive emissions if stored in open areas
- Types of practices that can be a source of fugitive emissions includes:
 - Storing and handling of waste and spent filters that contain metal particulates in open containers in open areas
 - Storing and handling of equipment such as hangers that are laden with metal particulates in open areas
 - Storing cleaning equipment in open areas



4

Certain practices on how parts are cleaned, materials are stored, and handling of parts can lead to fugitive emissions (*Continued*)

- Effective measures include:
 - Storing and handling of waste, spent filters, hangers, and cleaning equipment that are laden with metal particulates in closed containers or enclosures
 - Conducting periodic housekeeping to clean areas where items are stored



Three Main Strategies to Minimize Fugitive Emissions

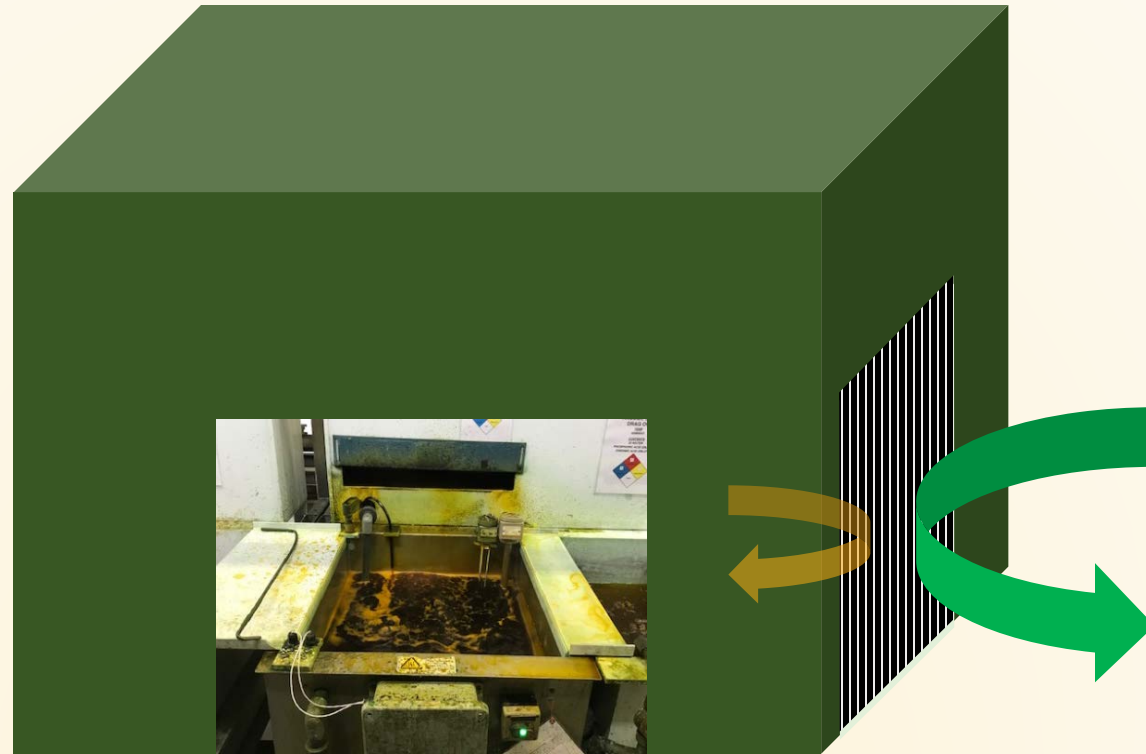
Best Management Practices

Operating practices to minimize creating fugitive particulate matter



Housekeeping

Housekeeping provisions to minimize fugitive particulate matter from becoming airborne






Enclosures











Enclosures with minimal openings for ingress and egress to contain fugitive particulate matter

Categories and Effective Measures

- Effective measures observed in each area can be grouped into the following categories, which will be discussed in following slides:








-  ● Housekeeping
-  ● Best management practices
-  ● Enclosure requirements

1 Measures to reduce fugitive emissions from electrified, air-sparged, and heated tanks

- Routine maintenance of pollution controls include:
 - Cleaning air slots for pollution controls 
 - Parameter monitoring 
 - Replacing filters 
 - Conducting smoke tests 
- Measures to contain fugitive emissions include:
 - Operating in an enclosure with limited openings 
 - Installing barriers that restrict air from passing through building openings 
 - Limiting use of compressed air near tanks 
 - Using a barrier to eliminate impacts to collection efficiency 
 - Removing or repositioning comfort fans near tanks 
 - Removing or repositioning roof fans above tanks 


2

Tank solution leaves tank and dries on surfaces and floors creating metal particulates that can become fugitive emission

- Measures to minimize the accumulation of liquids on floors and surfaces include:
 - Positioning tanks near each other to avoid dragout 
 - Installing drip trays and splash guards 
 - Containing materials below lip of tank 
 - Immediate cleaning of spills 
 - Routine cleaning of surfaces 
 - Implementing secondary containment below walkways 
 - Prohibiting fabric or carpet flooring materials 



3

Movements or openings in building can carry fugitive emissions out

- Measures to minimize track-out include:
 - Routine cleaning using approved cleaning methods 

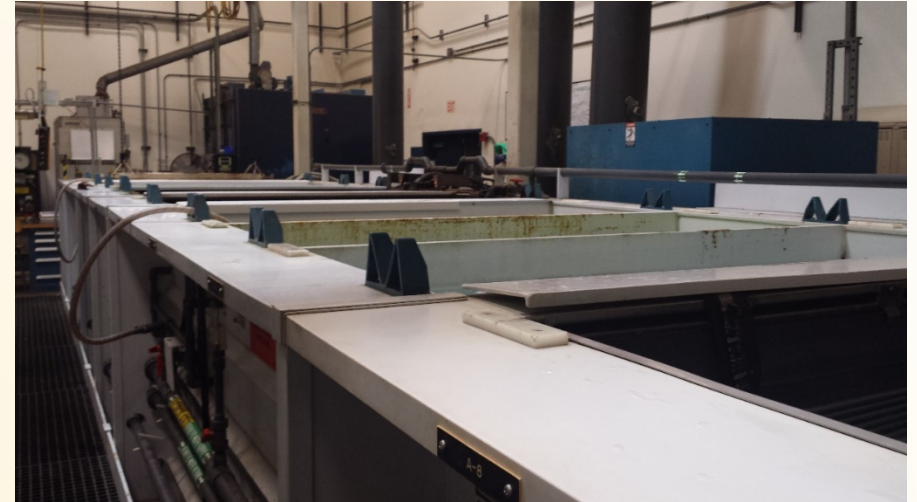
4

Certain practices on how parts are cleaned, materials are stored, and handling of parts can lead to fugitive emissions

- Measures include:
 - Storing and handling of waste, spent filters, hangers, and cleaning equipment that are laden with metal particulates in closed containers or enclosures 
 - Periodic housekeeping to clean areas these items are stored 

Summary

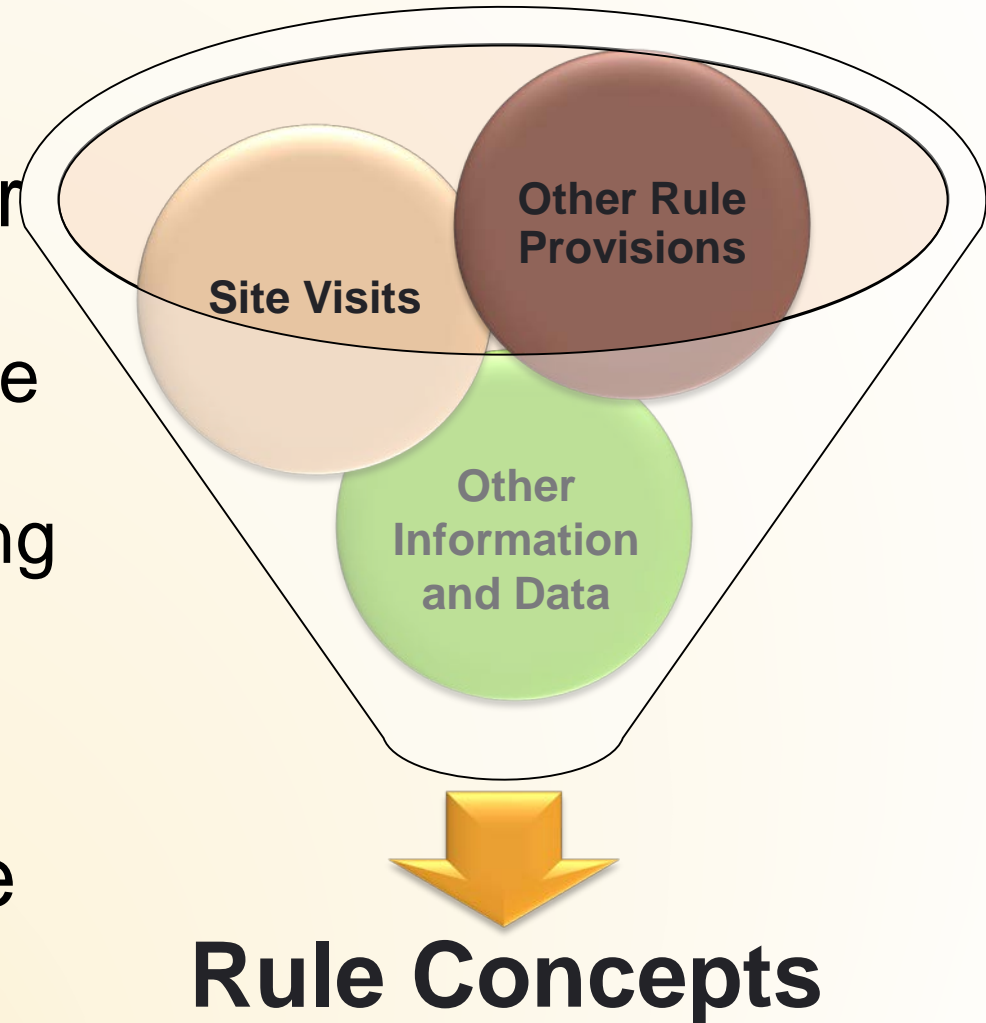
- Fugitive emissions from tank solution can be created throughout the facility
- Effective measures to minimize fugitive emissions from tank solution with a metal TAC include those from the following categories:
 - Housekeeping
 - Best management practices
 - Enclosure requirements
- Current Rule 1426 has limited housekeeping requirements
- PAR 1426 is needed to enhance housekeeping, best management practices, and enclosure requirements



Rule Concepts: Purpose and Applicability

Overview

- Rule concepts are initial thoughts for proposed provisions and consider:
 - Provisions in other toxic metal particulate rules
 - Information gathered from facilities during site visits
 - Other information and data
- Stakeholder input on rule concepts helps shape proposed rule language
- Presentation today will focus on purpose and applicability



PAR 1426 Concept - Purpose

- PAR 1426 would include a purpose to minimize fugitive emissions from metal finishing operations that use metal TAC solutions
- PAR 1426 would not specify point source controls or emission limits which would be addressed, if needed, in separate rules

Existing Rule 1426 - Applicability

- Facilities that perform electroplating using chromium, nickel, lead, or copper and chromic acid anodizing; and
- Associated process tanks containing:
 - Sulfuric, nitric, and hydrochloric acids
 - Chromic acids (except electroplating and anodizing)
 - Sodium hydroxide used in spraying operation

PAR 1426 Concept – Applicability

- Need to expand applicability to include any tank that contains a metal TAC, such as:
 - Air-sparged and heated tanks that are part of an electrolytic process line (e.g. sealing, conversion coating)
 - Tanks that are part of a non-electrolytic process line (e.g. passivation, electroless plating)
- Tank solution can leave tanks and dry out to become fugitive emissions even if no current is applied

Next Steps

- Present rule concepts
 - Housekeeping
 - Best Management Practices
- Initial responses for facility survey

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