Proposed Amended Rule 1469.1 -

Spraying Operations Using Coatings Containing Chromium

Working Group Meeting #2

June 10, 2020, at 10:00 AM

Zoom meeting link:

https://scaqmd.zoom.us/j/96917119209

Join via teleconference:

Dial-In Number: (669) 900-6833

Meeting ID: 969 1711 9209

Meeting Agenda

- Meeting Information
- Survey Response Data
- Response to Comments
- Housekeeping Rule Concepts
- Next Steps

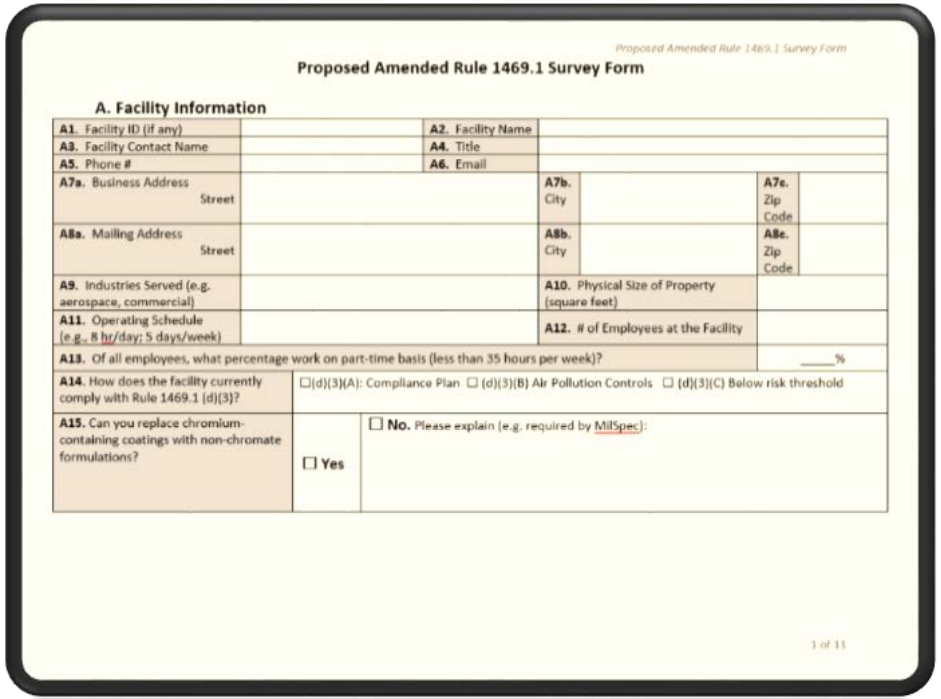
Meeting Information

- South Coast AQMD acknowledges the challenges to businesses and stakeholders due to COVID-19
- To ensure safe social distancing, Working Group meetings will be held via Zoom or a call-in option is also available
- Although it is a different format, staff will take the time to listen to all stakeholder comments
- In addition to Working Group meetings, staff is available for individual meetings

Survey Response Data

Survey Background

- Staff distributed a survey to 108 facilities via email and mail on 1/31/2020
- Objective was to gather information about equipment, operations, and general industry practice and approach to housekeeping and waste disposal
- Facilities that did not reply were sent reminder email on 3/17/2020



Proposed Amended Rule 1469.1 Survey Form

Proposed Amended Rule 1469.1 Survey Form

A. Facility Information

A1. Facility ID (if any)		**A2.** Facility Name			
A3. Facility Contact Name		**A4.** Title			
A5. Phone #		**A6.** Email			
A7a. Business Address Street		**A7b.** City		**A7c.** Zip Code	
A8a. Mailing Address Street		**A8b.** City		**A8c.** Zip Code	
A9. Industries Served (e.g. aerospace, commercial)		**A10.** Physical Size of Property (square feet)			
A11. Operating Schedule (e.g., 8 hr/day; 5 days/week)		**A12.** # of Employees at the Facility			
A13. Of all employees, what percentage work on part-time basis (less than 35 hours per week)?					____%
A14. How does the facility currently comply with Rule 1469.1 (d)(3)?	☐(d)(3)(A): Compliance Plan ☐ (d)(3)(B) Air Pollution Controls ☐ (d)(3)(C) Below risk threshold				
A15. Can you replace chromium-containing coatings with non-chromate formulations?	☐ Yes	☐ **No.** Please explain (e.g. required by MilSpec):			

1 of 11

Survey Responses Summary

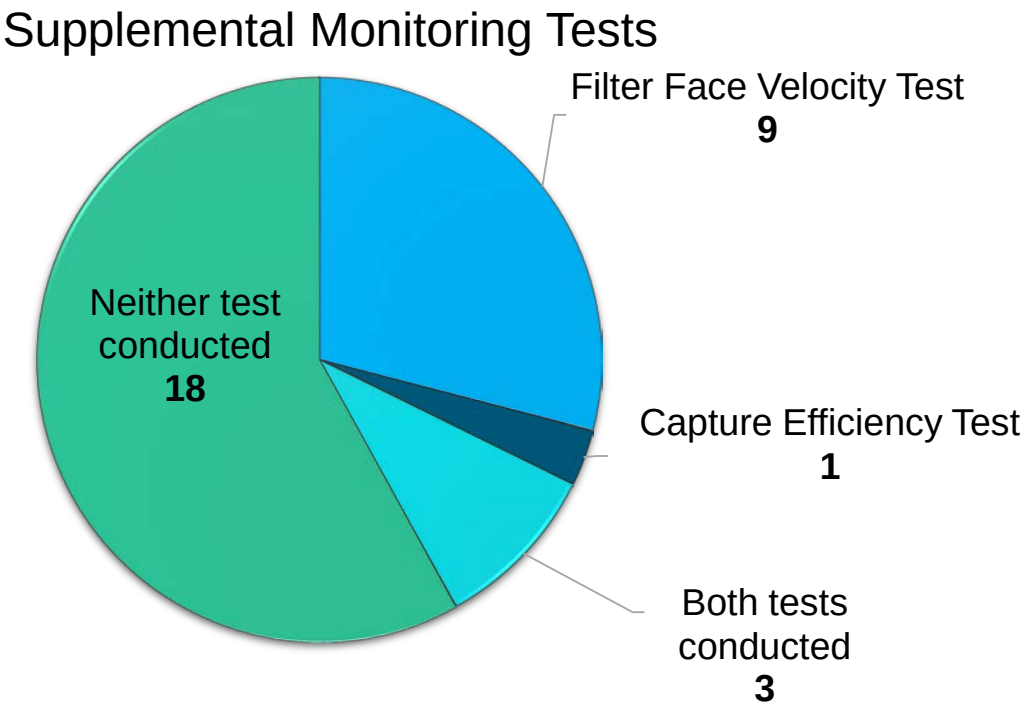
- 32 survey responses returned as of 5/14/2020
  - 31 completed survey responses
  - 1 facility physically removed the spray booth, permit remains active
- 28 of the 31 completed surveys identified the industries served
  - All 28 facilities serve the aerospace industry
  - Additional industries served:
    - 5 facilities also serve commercial industries
    - 1 facility also serves the defense industry
    - 1 facility also serves research and development

Survey Responses Summary *(continued)*

- 68 total spray booths were entered in survey responses
  - 24 open-faced spray booths – some spray booths may be operated in enclosed rooms
  - 44 enclosed spray booths
- 62 spray booths are equipped with HEPA or ULPA filters
- 6 spray booths (at 3 facilities) are not equipped with HEPA or ULPA filters

Survey Responses Summary *(continued)*

- Spray booth monitoring activities varied
- 27 of 31 facilities regularly check manometer gauges for filter pressure drop (required by spray booth permits)
- Most facilities did not conduct supplemental monitoring tests
  - filter face velocity
  - capture efficiency



Survey Responses Summary *(continued)*

Housekeeping schedules for spray booths and surrounding areas varied

Housekeeping Frequency	Number of Facilities
Daily	15
Every other day to weekly	5
Several times a year	2
No regular schedule	4
Not listed	5

Survey Responses Summary *(continued)*

- 23 facilities conduct demasking activities
  - 10 in controlled areas (9 within spray booths, 1 in a clean room)
  - 13 in uncontrolled areas, mostly near spray booths
- 11 facilities conduct mechanical removal of dried coatings (e.g. scuffing, sanding, or grinding)
  - All in controlled areas
    - 8 within spray booths
    - 3 use other controls (downdraft table, wet conditions, grinding booth)

Response to Comments

Stakeholder Comments From Previous Working Group Meeting

Comment #1	Is hexavalent chromium present in dried coatings?
Comment #2	Is the carcinogenic effect of hexavalent chromium the same in dried coatings and other materials?
Comment #3	Can dried coatings be fugitive emission sources?
Comment #4	Putting spray booths in enclosures is costly and can conflict with other regulatory agency requirements
Comment #5	Periodic source testing is costly

Response to Comment #1: Is hexavalent chromium present in dried coatings?

- Yes, hexavalent chromium is present in dried coatings
- Bulk samples of dried coatings were collected at various locations from four different facilities that sprayed chromium-containing coatings
- Samples were tested for hexavalent chromium and results presented in following slide

Response to Comment #1: Sampling Results

Facility	Bulk Sample Source	Hexavalent Chromium Content (ppm)					
A	Dried coatings on a HEPA filter	268					
A	Dust on the ground in waste disposal area	255					
A	On facility roofs adjacent to spray booth stacks	220					
B	From spray booth exhaust stack	45			ND		
B	Dried coatings on glass filter media in spray booth #1	108					
B	Dried overspray on paper floor covering in spray booth #2	600					
C	Pieces of dried overspray on the ground in a rack storage area	120	6500	8300	1700	1600	17000
D	Aluminum foil debris covered in dried overspray	1400			1900		

1 ng/m^3 of hexavalent chromium = 470 parts per billion or 0.047 parts per million

Response to Comment #2: Is the carcinogenic effect of hexavalent chromium the same in dried coatings and other materials?

- Yes, when inhaled, hexavalent chromium present in dried coatings affects the body the same way as when it is present in other materials
- International Agency for Research on Cancer (IARC, 1990):
  - Found sufficient evidence for the carcinogenicity of hexavalent chromium compounds as encountered in chromate production, chromate pigment production, and chromium plating industries
- National Toxicology Program (NTP) Report on Carcinogens (NTP, 2011):
  - Classifies hexavalent chromium compounds as known human carcinogens, based on carcinogenicity studies in humans

Response to Comment #3: Can dried coatings be fugitive emission sources?

- Dried coatings that are disturbed and become airborne can be fugitive emission sources
- Processes that lead to fugitive emissions:
  - Vehicular and foot traffic can crush dried coatings into small particles
  - Dried coatings on materials left in the open
  - Uncontrolled sanding, scuffing, grinding, and other machining of parts or materials containing chromium coatings
  - Demasking operations

Response to Comment #4: Putting spray booths in enclosures is costly and can conflict with other regulatory agency requirements

- Enclosures are currently used at facilities to reduce fugitive emissions from open-faced spray booths
- Provisions can be added to avoid conflict with other agency requirements
- Current rules have provisions that allow alternative enclosure requirements to avoid conflict with requirements from other agencies
  - Rule 1407 (f)(2) - Facilities can submit a Building Enclosure Compliance Plan
  - Rule 1430 (d)(4) - Enclosures must not conflict with OSHA or CAL-OSHA requirements
  - Rule 1469 (e)(6) - Facilities can submit a Building Enclosure Compliance Plan
- Methods to reduce fugitive emissions other than full enclosure, such as strip curtains, will be discussed during the rulemaking process

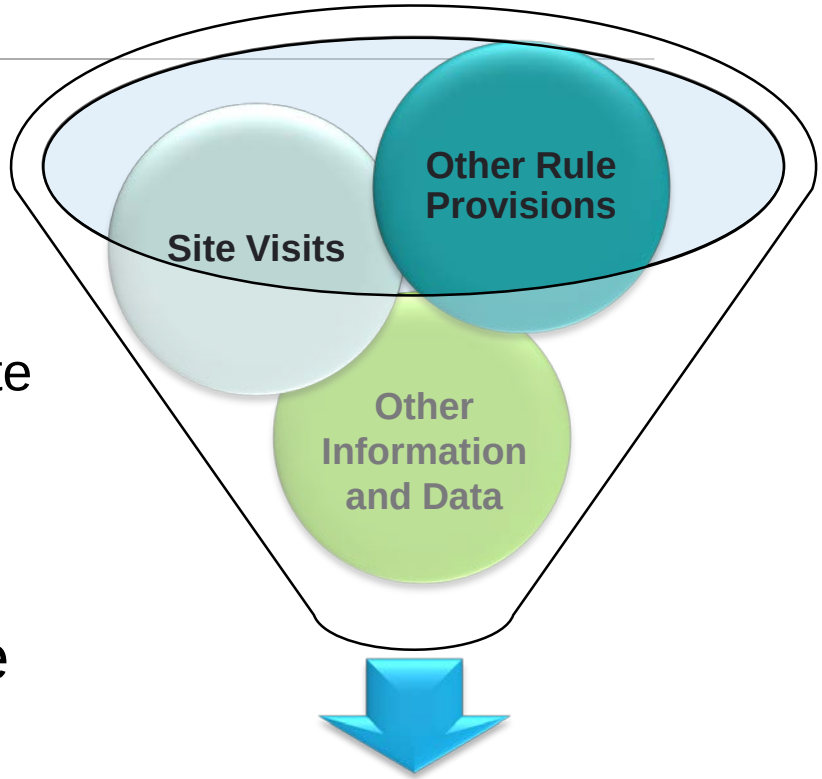
Response to Comment #5: Periodic source testing is costly

- Source testing demonstrates the effectiveness of spray booth pollution controls
- Cost for a source test can range from $10,000-$30,000
- Staff understands there are unique circumstances with source testing spray booths used for coatings containing chromium
  - Testing may require long duration of spraying expensive coatings, not representative of typical operating conditions
- Staff is evaluating less costly options, such as outlet testing only and/or supplemental parameter monitoring
  - Will evaluate these and other possible alternatives through the rulemaking process

Housekeeping Rule Concepts

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 housekeeping provisions



Background - Housekeeping

- Housekeeping measures are effective at reducing fugitive emissions when conducted routinely and using appropriate methods
- Housekeeping requirements in Rule 1469.1 need to be updated to be consistent with housekeeping provisions in recent toxic metal particulate rules

Current Rule 1469.1 Housekeeping Requirements [(d)(7)]

- Conduct spraying or cleanup operations in a manner to minimize fugitive emissions of atomized paint particles
- Required actions when removing protective floor, wall, or exhaust coverings:
  - Operate ventilation system
  - Ensure doors of enclosed spray booth are closed
  - Encapsulate collected materials containing chromium that are intended for disposal prior to removing from the spray booth
- Do not operate ventilation system when one or more filters are being removed or replaced

- Non-specific requirement
- Cleanup frequency, locations, and approved methods needed

- Focused on spray booth activities
- Actions needed for activities outside of spray booths

Housekeeping Provisions in Recent Toxic Metal Particulate Rules

- In recent years, a number of toxic metal particulate rules have been amended or adopted
- Housekeeping requirements were strengthened to minimize fugitive emissions from operations involving toxic metal particulates
- Requirements are generally similar across the rules

General Categories of Housekeeping Measures

Approved Cleaning Methods

- Techniques used to clean that do not generate fugitive emissions

Routine Cleaning

- Areas that should be cleaned at regular intervals/frequencies

Cleaning Spills

- Cleaning of spilled materials

Waste Collection and Storage

- On-site collection and storage of waste materials

Comparison of Housekeeping Provisions in Rule 1469.1 and Other Metal Particulate Rules

Rule Provisions	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 1469 Anodizing and Plating (Hexavalent Chromium)	Rule 1469.1 Coating Spraying (Hexavalent Chromium)
Approved Cleaning Methods	Yes	Yes	Yes	Yes	Yes	Yes	No
Routine Cleaning	Yes	Yes	Yes	Yes	Yes	Yes	No
Cleaning Spills	Yes	Yes	Yes	Yes	No	Yes	No
Waste Collection and Storage	Yes	Yes	Yes	Yes	Yes	Yes	No

Proposed Rule Concepts

- Proposed housekeeping concepts are based on the categories from recent toxic metal particulate rules, adjusted for PAR 1469.1 facilities:

- Discussion for each category will include background information, examples from other toxic metal particulate rules and initial recommendations

Approved Cleaning Methods

Background

- Recent toxic metal particulate rules require the use of approved cleaning methods to prevent fugitive emissions
- Approved cleaning methods are generally comprised of wet cleaning and HEPA vacuuming
  - Wet cleaning uses water to prevent emissions and examples include wet washing, wet mopping, and cleaning with a damp cloth
  - HEPA vacuuming is the use of a vacuum that is both designed for use of and fitted with HEPA filter(s) [individually dioctyl phthalate tested and certified by manufacturer, or equivalent manufacturer-certified test, to achieve a control efficiency of not less than 99.97% on 0.3 micron particles]

Approved Cleaning Methods

Initial Recommendations

- Require the use of approved cleaning methods similar to other metal toxics rules when conducting routine cleaning and cleaning spills
- Approved cleaning methods include wet cleaning and HEPA vacuum
- Cleaning materials such as mops and cloths potentially containing coating particles should be stored in closed containers

Routine Cleaning Background

- Coating particles containing chromium can accumulate in and around:
  - Spray booths
  - Areas where coating-related operations occur (I.e. demasking, scuffing or sanding)
  - Areas where equipment with chromium coatings are stored or placed (personal protective equipment (PPE), paint guns, or paint pressure pots)
  - Rack and waste storage areas
- Open-faced spray booths are more exposed to the surrounding environment than enclosed spray booths, and can be more likely to generate fugitive emissions
- Coating particles that accumulate in outdoor areas, from activities such as moving racks and storing waste materials, have a greater potential of becoming fugitive emissions

Routine Cleaning

Other Toxic Metal Particulate Rules

- Routine cleaning of areas where coating particles containing chromium can accumulate minimizes fugitive emissions
- Recent toxic metal particulate rules specify areas and frequencies for routine cleaning
  - Areas include work zones and surrounding areas (distances range from 20 to 30 feet)
  - Frequencies vary by rule depending on source (e.g. after each shift, on days when activity occurs, weekly, quarterly)
- Next slides describe initial recommendations for areas to be cleaned and frequencies

Routine Cleaning

Initial Recommendations for Spray Booths

Clarify existing subparagraph (d)(7)(A) requirements and recommend the following:

Cleaning Areas and Procedures	Enclosed Spray Booths	Open-Faced Spray Booths
Spray Booth Interiors: Clean floors OR replace protective floor covers	Every 7 operating days	Every operating day or every 7 operating days if protective floor covers are used
Clean walls OR replace protective wall covers	Once a year	Once a year
Spray Booth Exteriors: Clean floor area extending 20 feet outward from enclosure entrances or from edge of open face spray booth	Weekly, or after maintenance activities* or removal of wall/floor coverings	Every operating day, or after maintenance activities* or removal of wall/floor coverings

* Maintenance activities that could potentially generate fugitive emissions (e.g. removing filters)

Routine Cleaning

Initial Recommendations for Identified Areas

- Weekly cleaning within 20 feet of the following areas:
  - Paint mixing
  - Storage of equipment, materials, and protective coverings and clothing with coatings containing chromium
  - Rack or stand storage
  - Waste container and waste storage
- Daily cleaning within 20 feet of areas where demasking, scuffing, sanding, grinding and other where activity that involves disturbing dried coatings containing chromium occur
- Initiate cleaning within one hour after any operation, maintenance activity or event that causes deposition of dried coatings containing chromium on surfaces subject to vehicular or foot traffic

Cleaning Spills

Background / Initial Recommendation

- Spilled liquid coatings can be subject to future disturbances if allowed to dry
- Recent rules typically require clean-up of spills within 1 hour

Initial Recommendation

- Clean up spills within 1 hour

Waste Collection and Storage

Background

- Waste materials are generated from various processes involving coatings containing chromium
- Examples include used spray booth filters, used masking tape, spray booth protective coverings, used PPE, and cleaning cloths
- Certain waste material collection and storage practices can minimize coating particles containing chromium from becoming airborne
- Recent toxic metal particulate rules include specific methods for waste material collection and storage
  - Transport in a closed container or conveyed in a closed system
  - Store in sealed leak-tight containers or closed containers

Waste Collection and Storage

Initial Recommendations

- Waste materials from all operations involving coatings containing chromium should be stored and transported in closed, nonporous containers
  - Includes all waste materials from spray booths permitted to allow coatings containing chromium
- Waste containers should be lined with sealable removable bags if waste materials will be transferred to other containers
- All waste containers should be closed or covered unless waste materials are being added or removed

Housekeeping Recap

- Housekeeping recommendations are intended to reduce fugitive emissions

Housekeeping Measure Category	Recommendation Summary
Approved Cleaning Methods	Use approved cleaning methods such as wet cleaning using mops and cloths, and HEPA vacuuming
Routine Cleaning	Routinely clean areas where coatings containing chromium are handled at specified frequencies
Cleaning Spills	Clean up coating spills within 1 hour
Waste Collection and Storage	Collect and store waste materials with coatings containing chromium in closed, leak-tight containers

Next Steps

Next Steps


Hold monthly working group meetings
Working Group #3: present additional rule concepts
Stationary Source Committee
Governing Board Meeting – First Quarter 2021

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