

Metal Finishers

- Represent a vital industry in California
- MFASC and STA represent most of 225 facilities in California
- MFASC/STA are pro-active and pro-environment
 - 99.9% reductions in Cr6 since 1986
 - Winner of Clean Air Awards
 - Recipient of National Pollution Award



South Coast Air Quality Management District

2003 Clean Air Award

Presented to

METAL FINISHING ASSOCIATION OF SOUTHERN CALIFORNIA

In the category of

Promotion of Good Environmental Stewardship

For working cooperatively to develop workable rules (Amended Rule 1469 & Rule 1426) for the region's metal plating facilities.

October 15, 2003

Metal Finishers and 1469

- 75% of all statewide facilities located in So. Cal. and just completed implementation of SCAQMD Rule 1469 (now the most stringent standard in the world)
- Rulemaking signed by environmentalists and agencies
- Rule 1469 reduced Cr6 statewide emissions by more than 10 pounds
- Many facilities have not fully paid for Rule 1469 compliance
- Industry is not opposed to reasonable regulation

concerns and uncertainty about emission estimation, rule compliance and reliability of fume suppressants, suggesting HEPA filters be used at each facility. They identified environmental justice and cumulative impacts as other major issues, along with emissions from facilities in close proximity to residences, schools and other sensitive receptors.

The suite of changes recommended for Rule 1469, and the data gathering approach recommended for PR 1426, represents the outcome of the negotiated rulemaking process. The signatures below from industry and environmental/community Working Group members who participated throughout the process acknowledge: 1) the accuracy of concerns and perspectives summarized in this document, 2) the extensive effort expended to address the critical interests expressed by each group throughout the process, and 3) their support for the negotiated rulemaking process which provided the basis for the proposed staff recommendations.

Metal Finishing Negotiated Rulemaking Working Group:

Sam Beal
Sam Beal, Metal Surfaces

Geoff Blake
Geoff Blake, All Metals Processing
of Orange County

Elaine Chang
Elaine Chang, AQMD

Turt Coleman
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Dan Cunningham
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Kate Forbis, Environmental Health
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Harry Lery
Harry Lery, Gene's Plating & Polishing

Harold Meritt
Harold Meritt, Able Indus. Products

Marshall Medicine
Marshall Medicine, Amer. Lung Assoc.

Tom Miles
Tom Miles, Conserve Engineering

Alan Olick
Alan Olick, General Plating

Bary Wallstein
Bary Wallstein, AQMD

Jim Whynot
Jim Whynot, AQMD

Cr6 Emissions and Cost

- Metal finishers represent four (4) pounds of 3,000 pounds of Cr6 emissions in state
- The Proposed ATCM seeks to reduce 2.2 pounds of Cr6 from the metal finishing industry (0.0724% of statewide total)
- Staff suggests the cost of this reduction is \$14.2 million, but the figure is even higher

Metal Finishers and Cr6 Risk

- Risk from metal finishing industry is low
- Total calculated cancer risk from all metal finishers in state is 4.1 persons / 70 years
- Statewide risk from Cr6 is $>1,000$
- Proposed ATCM for Cr6 seeks 1:1M risk or less for exposed persons from metal finishers

What is the Standard?

- Proposed ATCM seeks 0.0015 mg Cr6 / amp-hr for facilities > 20,000 amp-hr / yr
- Amp-hr is measure of power applied per hour to the chromium solution
- About 60 facilities within 20,000 to 200,000 amp-hr /yr category
- Current standard is 0.01 mg or better (SCAQMD) or .04 mg or better (rest of state)

Risk

- Proposed ATCM seeks 1:1M cancer risk or less for exposed persons
- Where is the risk by location and facility size?
 - Inside SCAQMD 0.5 cancer risks
 - 75% of facilities
 - Rule 1469 implemented
 - Rest of state 3.61 cancer risks
 - Highest risk- 1-15,000,000 amp-hr/Y facilities

Size Category	Number of Facil.	Within SCAQMD (1469)		Outside SCAQMD	
Range/ Midpoint AH/Y		No. of Facilities / Emission Rate / MICR	Cancer Burden All Facil.	No. of Facilities / Emission Rate / MICR	Cancer Burden All Facil.
0 - 20,000 / 10,000	48	36* @ <0.01 mg/AH MICR = $<1 \times 10^{-6}$	0	2* @ <0.01 mg/AH MICR = $<1 \times 10^{-6}$	0
				10 @ 0.04 mg/AH MICR = 2.1×10^{-6}	0.0005
20,000 - 200,000 / 110,000	60	15* @ <0.0015 mg/AH MICR = $<1 \times 10^{-6}$	0	15 @ <0.04 mg/AH MICR = 22.55×10^{-6}	0.128
		30 @ <0.01 mg/AH MICR = 5.7×10^{-6}	0.011		
200,000 - 1,000,000 / 600,000	45	27* @ <0.0015 mg/AH MICR = $<1 \times 10^{-6}$	0	11 @ <0.006 mg/AH MICR = 22.74×10^{-6}	0.087
		7 @ <0.0015 mg/AH MICR = 5.7×10^{-6}	0.0026		
1,000,000 - 5,000,000 / 3,000,000	34	21* @ <0.0015 mg/AH MICR = 0.5×10^{-6}	0.006	4 @ <0.006 mg/AH MICR = 113.7×10^{-6}	1.254
		5 @ <0.0015 mg/AH MICR = 28.5×10^{-6}	0.058	4 @ <0.0015 mg/AH MICR = 28.5×10^{-6}	0.047
5,000,000 - 15,000,000 / 10,000,000	15	9* @ <0.0015 mg/AH MICR = 5×10^{-6}	0.007	2 @ <0.006 mg/AH MICR = 141.8×10^{-6}	1.613
		2 @ <0.0015 mg/AH MICR = 35.4×10^{-6}	0.077	2 @ <0.0015 mg/AH MICR = 35.4×10^{-6}	0.077
> 15,000,000 / 30,000,000	18	11* @ <0.0015 mg/AH MICR = 10×10^{-6} 3 @ <0.00075 mg/AH MICR = 53.2×10^{-6}	0.042 0.300	4 @ <0.00075 mg/AH MICR = 53.2×10^{-6}	0.400
Total	220	166	0.50	54	3.61

Understanding Risk

- Very little actual testing conducted for proposed ATCM
- Modeling requires many assumptions
- Each step estimating risk ALWAYS errors to be health protective
- Certain evaluations, like determining cancer risk, must be done to inform decision makers “how safe is safe”

Modeling Actions

- The modeling scenario overestimated risk
 - All facilities released Cr6 to atmosphere using one year Pasadena meteorological data
 - All point sources had one foot stacks
 - Staff biased modeling for 95% of facilities by using different assumptions for “small” facility (modeling <5M AH/Y versus Proposed ATCM <20,000 AH/Y)
 - Hypothetical exposure considers worst point (not actual receptor)

Technology

- Staff claims that “add-on controls” (HEPA filtration) are best available control technology (BACT) and are the only technology that may be used for operations > 200,000 amp-hours / year
- Documentary evidence submitted showing alternatives including “in-tank controls” can achieve equal or better emission results
- Cost difference in installation and ongoing maintenance is LARGE

Three Requested Changes by Metal Finishers

1. Flexibility to reach emission standard
2. Use of all approved technologies to reach emission standard
3. Consider risk to setting emission standard

1. Flexibility

- Staff claims that add-on (HEPA filtration) is BACT and standard is 0.0015 mg/amp-hr
- Documentary evidence submitted showing in tank controls achieving equal or better emission results
- Mandatory requirement to use HEPA to achieve BACT is arbitrary

Hexavalent and Total Chromium Emissions from Chrome Plating Tank Number 19B Using Fumetrol 140, Dis-Mist NP and Polyballs

Conducted at California Electroplating, Inc.

Approved by the South Coast Air Quality Management District, Oct. 2005

Prepared by Professional Environmental Services, Inc.

Process Data

Tank: 36"W x 72"L x 48"H

Rectifier (nominal): 600A 3V

Chromic acid: 30.2 ounces per gallon

Temperature: 105°F

Freeboard: 5"

Mixing: None

Surface tension: 29 dynes per centimeter

Foam thickness: 1-1.25" Polyballs: 1"0; 95% coverage of tank surface area

Results

	Test 1	Test 2	Test 3	Test average
Current AH/H	411	362	425	---
Cr6 emission rate (mg/AH)	0.00022	0.00009	0.00007	0.00013
Cr total emission rate (mg/AH)	0.00057	0.00043	0.00037	0.00046

The proposed emission standard is 0.0015!

2. Approved Technologies

- In tank controls are good technology
 - fume suppressants
 - foam blankets
 - polyballs
- Staff assumed that foam blankets were unacceptable and failed to certify them
 - No testing or analysis by Staff
- Cal Electro testing shows the value
- SCAQMD certifies foam blankets

South Coast Air Quality Management District Certified Fume Suppressants

Company	Product	Usage Restrictions	Contact Name
Atotech USA	Fumetrol 140	Shall be used at or below 40 dynes/cm	Gary Wannlund
Atotech USA	Fumetrol 140 + Dis-Mist NP	Both products shall be used in combination at or below 45 dynes/cm. A foam blanket of not less than one inch shall be maintained while plating, with foam blanket coverage of not less than 95% of the tank surface area.	Gary Wannlund
Benchmark Products	Benchbrite CR-1800	Shall be used at or below 40 dynes/cm	Steve Erwin
Enthone, Cookson Electronics	Zero Mist Liquid R	Shall be used at or below 32 dynes/cm	Brad Kerr
MacDermid	Clepo Chrome Mist Control 74095	Shall be used at or below 40 dynes/cm	Ken Kraemer

3. Risk Evaluation

- 20,000 to 200,000 amp-hours / year category
- 60 Facilities; 36 > 25 meters from receptor
- Facilities > 25 meters from sensitive receptor have lower risk
- Risk determined at 1:million or lower is equivalent to facilities less than 20,000 amp-hours /year
- Emission standard set at 0.01 mg / amp- hour if criteria met

Category Range/Midpoint	Number of Facilities	Rule 1469	PAATCM
< 20,000 / 10,000	48	36 meet PAATCM 12 @ 0.01 mg/AH MICR=<1:M@25m	36 meet PAATCM 12 @ 0.01 mg/AH MICR=<1:M@25m
20,000 - 200,000 / 110,000	60	15 meet PAATCM 45 @ 0.01 mg/AH MICR=55:M @25m	15 meet PAATCM 45 @ 0.0015 mg/AH MICR=<1:M@25m
$\Delta CB=0.02$			
200,000 - 1,000,000 / 600,000	45	27 meet PAATCM 7 @ 0.0015 mg/AH MICR=5.7:M@25m 11 @ 0.01 mg/AH MICR=37.9@25m	27 meet PAATCM 18 @ 0.0015 mg/AH MICR=5.7:M@25m
$\Delta CB=0.20$			
1,000,000 - 5,000,000 / 3,000,000	34	21 meet PAATCM 10 @ 0.0015 mg/AH MICR=28.5:M@25m 3 @ 0.01 mg/AH MICR=189:M	21 meet PAATCM 13 @ 0.0015 mg/AH MICR=28.5:M@25m
$\Delta CB=0.28$			
5,000,000 - 15,000,000 / 10,000,000	15	9 meet PAATCM 6 @ 0.0015 mg/AH MICR=35.4 @25m	9 meet PAATCM 6 @ 0.0015 mg/AH MICR=35.4 @25m
$\Delta CB=0.0$			
>15,000,000 - 30,000,000	18	11 meet PAATCM 7 @ 0.0015 mg/AH MICR=106.4:M @25m	11 meet PAATCM 7 @ 0.0015 mg/AH MICR=106.4:M @25m
$\Delta CB=0.0$			
Total	228	$\Delta CB=0.50$	

**Requirements Compared Between the PAATCM and
Revised PAATCM for Facilities in
20,000 Amp-hr/Y to 200,000 Amp-hr/Y Range**

Category Range/Midpoint	Number of Facilities	PAATCM	<u>Revised PAATCM</u>
20,000 – 200,000 / 110,000	60	15 meet PAATCM 45 @ 0.0015 mg/AH MICR=<1:M @25m CB=0.0031	15 meet PAATCM 9 @ 0.0015 mg/AH MICR=<1:M @25m 36@ 0.01 mg/AH MICR=3.76:M CB=0.0066
		Δ CB=0.0035 Over 70 years	

36 facilities allowed to meet 0.01 mg/amp-hr because
risk is 1:1M or less at more than 25 meters

The Economic Impact

- Staff Report stated the cost of the measure is \$14.2M which is to be borne by about 90 facilities
- Staff Report identified that a decline on the return on owner's equity (ROE) will average of 9% (10% being significant)
 - Staff Report conclusion already within margin of error of +/-1%
- Using CARB data, economist from Environomics determined ROE decline is 44-60%, demonstrating a significant adverse effect on business

The Economic Impact

If adopted as drafted the PAATCM causes:

- Closure of 68 California facilities (30%)
- Loss of 3,860 jobs
- A “ripple effect” through manufacturing business in California
- Impact on out-of-state competitiveness
- If passed, proposed ATCM will cost \$154 million per cancer case avoided
 - Highest previous CARB-approved ATCM (\$18.6M)

Economic analysis by Environomics on these concerns is found in MFASC/STA submission

An Acceptable Alternative

- Industry ready to endorse almost everything in proposed ATCM
- Alternative will help industry and lessen economic impact
- Alternative compares favorably with SCAQMD suggestions

Industry and SCAQMD Comparison with ATCM

Elements	Proposed State Chrome ATCM	ATCM with Suggested SCAQMD Amendments	ATCM with Industry Amendments
Existing Facilities $\leq 20,000$ A-Hr	•0.01 mg/A-Hr (No foam blanket)	•0.01 mg/A-Hr (Any approved method)	•Same as SCAQMD
Existing Facilities $>20,000$ - $\leq 200,000$ A-Hr •Sensitive receptor ≤ 100 m	•0.0015 mg/A-H (2 years)	•0.0015 mg/A-H (3 years) •0.01 mg/A-H (interim, 6 mo)	•0.0015 mg/A-H (2 years) •Sensitive receptor ≤ 25 m •0.01 mg/A-H (6mo)
•Sensitive receptor >100 m	•0.0015 mg/A-H (5 years)	•0.0015 mg/A-H (4 years) •0.01 mg/A-H (interim, 6 mo)	•Sensitive receptor > 25 m •MCCR 1:1M or greater
Existing Facilities $>200,000$ A-Hr	•0.0015 mg/A-H must use HEPA (2 years)	•0.0015 mg/A-H any approved method (2 years)	•Same as SCAQMD
Existing Facilities >15 g/year	•AB2588	•0.0011 mg/A-H (=HEPA and Fume) or AB2588	•Same as SCAQMD
Buffer zone for new facilities	•150 meters •Zoned for residential or mixed use	•300 meters •Add to ATCM school and school under construction	•Same as SCAQMD
Backstop	•None	•3 strikes within 5 year: 0.0011 mg/A-H (=HEPA and Fume)	•Same as SCAQMD
Compliance	•Designated to local air agency's policy	•Complete annual inspection •Quarterly inspection •Source tests •Smoke tests •Standardized guidelines with CARB and CAPCOA •Enhanced training classes	•Same as SCAQMD
Recordkeeping	•Same	•Same, PLUS •Enhanced daily records for APC operating parameters •Weekly smoke tests •Maintenance records •Purchase orders for filters and waste manifest for disposal	•Same as SCAQMD
Training	•Same	•At all times, more frequent	•Same as SCAQMD

Why Our Changes?

- Agree with or exceed CARB proposal
- Health protective and do not affect risk
- Flexibility and use of all available technologies is not harmful to the public if standard is met
- Adjustment to one group of facilities saves businesses and jobs
- Reduce Cr6 to less than 2 pounds from this industry statewide
- Continue industry's effort to work with regulators to improve environment
- Very similar to CARB and SCAQMD suggestions

Health Protective Alternative

- 3. Allows facilities in 20,000 to 200,000 amp-hour per year category meet .01 mg/amp-hour instead of 0.0015 mg/amp-hour if:
 - (1) located greater than 25 meters from sensitive receptor, and
 - (2) risk is one in one million or lower
- SCAQMD supports 1 and 2. Number 3 is health protective and saves jobs