

**SACRAMENTO METROPOLITAN  
AIR QUALITY MANAGEMENT DISTRICT**

For Agenda of **September 25, 2008**

**To:** Board of Directors  
Sacramento Metropolitan Air Quality Management District

**From:** Larry Greene  
Executive Director/Air Pollution Control Officer

**Subject:** Adopt Resolutions Approving Amendments to:

1. Rule 450, Graphic Arts Operations
2. Rule 451, Surface Coating of Miscellaneous Metal Parts and Products
3. Rule 452, Can Coating
4. Rule 454, Degreasing Operations
5. Rule 456, Aerospace Assembly and Component Coating Operations
6. Rule 463, Wood Products Coatings
7. Rule 464, Organic Chemical Manufacturing Operations
8. Rule 465, Polyester Resin Operations
9. Rule 466, Solvent Cleaning

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**Recommendations**

1. Determine that the amendments to Rules 450, 451, 452, 454, 456, 463, 464, 465, and 466 are exempt from the California Environmental Quality Act (CEQA);
2. Adopt the attached resolutions approving the amendments to Rules 450, 451, 452, 454, 456, 463, 464, 465, and 466.

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**Executive Summary**

Staff is proposing to amend Rules 450, 451, 452, 454, 456, 463, 464, 465, and 466. These District rules regulate operations that use solvents for the cleaning of coating application equipment, surface preparation, general/maintenance cleaning and degreasing. The primary purpose of this rule project is to reduce the emissions of volatile organic compounds (VOC) from the use of solvents. In doing so, the District will fulfill a state plan commitment to adopt more stringent solvent cleaning standards based on "all feasible measures," and will also achieve emission reductions that will help the District attain the federal 8-hour ozone standard.

Staff proposes to reduce the allowable VOC content of materials used in a variety of solvent cleaning activities, including: cleaning of coating and ink application equipment; surface preparation; product cleaning; maintenance cleaning; and degreasing (including parts cleaners). VOC limits as low as 25 grams per liter are proposed, with higher limits for certain specialized applications. The proposed limits have been implemented in the South Coast Air Quality Management District (SCAQMD) and have been demonstrated

to be feasible. The San Joaquin Valley Unified Air Pollution Control District (SJVUAPCD) has also adopted these requirements.

Staff is also proposing amendments to address potential issues identified by U.S. EPA regarding the approvability of these Rules into the State Implementation Plan (SIP) and to meet federal requirements for Reasonably Available Control Technology (RACT). The proposed amendments will conform to recent Control Technique Guideline documents (CTGs) that establish presumptive RACT for certain graphic arts operations regulated under Rule 450 and metal furniture coatings regulated under Rule 451.

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## Attachments

The table below identifies the attachments to this memo.

Item	Attachment	Page Number
Board Resolutions for Rules 450, 451, 452, 454, 456, 463, 464, 465, and 466	A	10
Draft Rules 450, 451, 452, 454, 456, 463, 464, 465, and 466	B	29
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## Background

The District is currently classified as a “serious” nonattainment area for the federal 8-hour ozone standard. Ground level ozone is a secondary pollutant formed from photochemical reactions of nitrogen oxides (NO<sub>x</sub>) and volatile organic compounds (VOCs) in the presence of sunlight. Ozone is a strong irritant that adversely affects human health and damages crops and other environmental resources. As documented by the U.S. Environmental Protection Agency (EPA) in the most recent Criteria Document for ozone (U.S. EPA 2006), both short-term and long-term exposure to ozone can irritate and damage the human respiratory system, resulting in:

- decreased lung function;
- development and aggravation of asthma;
- increased risk of cardiovascular problems such as heart attacks and strokes;
- increased hospitalizations and emergency room visits; and
- premature deaths.

In the 2003 Triennial Report, the District committed to adopt more stringent solvent cleaning standards to satisfy state plan requirements for “all feasible measures.” SCAQMD Rule 1171, Solvent Cleaning Operations, was identified as the most stringent feasible measure to reduce emissions from solvent cleaning. These requirements have

also been adopted by SJVUAPCD. The proposed amendments will fulfill the District's state plan commitment, and will achieve emission reductions that will help the District attain the federal 8-hour ozone standard.

Section 182 (b)(2) of the federal Clean Air Act requires that for nonattainment areas classified as "moderate" or worse, states must revise their SIPs to include "reasonably available control technology" (RACT) for sources of VOC emissions covered by a CTG document issued after November 15, 1990 and prior to the area's date of attainment. The proposed amendments will address three recent CTGs have been issued by EPA that pertain to Rule 450, Graphic Arts Operations, and Rule 451, Surface Coating of Miscellaneous Metal Parts and Products.

The CTG for Offset Lithographic Printing and Letterpress Printing, dated September 2006, provides control recommendations for reducing VOC emissions from the use of fountain solutions, cleaning materials, and inks in offset lithographic printing and cleaning materials and inks in letterpress printing. Recommended control methods include the use of add-on control equipment achieving the recommended control efficiencies, process modifications or work practices, and material reformulation or substitution using lower VOC materials.

The CTG for Flexible Package Printing, dated September 2006, provides control recommendations for reducing VOC emissions from inks, coatings, adhesives and cleaning materials used in flexible package printing. Recommended control methods include the use of add-on control equipment achieving the recommended control efficiencies and material reformulation or substitution using lower VOC materials.

The CTG for Metal Furniture Coatings, dated September 2007, provides control recommendations for reducing VOC emissions from the use of surface coatings on metal furniture. Recommended control methods include the use of add-on control equipment achieving the recommended control efficiencies, process modifications or work practices, and material reformulation or substitution using lower VOC materials.

Staff has proposed amendments to Rules 450 and 451 to conform to the presumptive RACT established in these CTGs.

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## Summary of Proposed Rule Amendments

The major proposed rule changes are summarized below. Please refer to the staff report for more detail on the proposed changes.

**Rule 450, Graphic Arts Operations:** Rule 450 regulates VOC emissions from graphic arts operations, which include cleaning activities for flexographic, lithographic, and screen printing, and various other coating and laminating operations. This rule is being proposed for amendment in order to require that general cleaning and application equipment cleaning operations use cleanup materials with lower VOC content than previously allowed and to incorporate the relevant CTG requirements. The proposed

amendments will:

- Lower the solvent VOC limits for several cleaning categories to as low as 25 grams per liter (g/l); and
- Eliminate the current VOC composite vapor pressure limits and all references to vapor pressure limits.
- For sources that emit more than 450 pounds of VOC per month, lower the VOC limits for fountain solutions.
- For sources that emit 25 tons of VOC or more per year, require control equipment for lithographic, letterpress, and flexible package printing operations.

**Rule 451, Surface Coating of Miscellaneous Metal Parts and Products:** This rule applies to coating, coating removal (stripping), surface preparation, and cleanup operations for miscellaneous metal parts and products. The proposed amendment will lower the VOC limit for surface preparation and cleanup materials to 25 g/l, lower the VOC limits for metal furniture coatings to as low as 275 g/l, and increase the emissions control equipment efficiency requirement to 90%.

**Rule 452, Can Coating Operations:** This rule applies to can coating operations, including surface preparation and cleanup. The proposed amendments will:

- Lower the VOC limit for cleaning to 25 g/l.
- Reduce the VOC content limits for two piece and three piece interior body sprays and end sealing compounds.
- Specify acceptable application methods.
- Increase emissions control equipment efficiency requirement to 90%.

**Rule 454, Degreasing Operations:** Rule 454 regulates VOC emissions from solvent degreasing operations. As defined in the rule, degreasing operations include vapor and non-vapor (cold) degreasing. This rule is being proposed for amendment in order to require that all degreasing operations use solvents that contain no more than 25 g/l of VOCs. This rule currently allows the use of airtight/airless cleaning system or emissions control equipment as alternatives to complying with the VOC limit. Staff proposes to retain the option to use an airtight/airless cleaning system. Staff also proposes to add an exemption for the degreasing of high-voltage microwave vacuum tubes.

**Rule 456, Aerospace Assembly and Component Coating Operations:** This rule limits VOC emissions from aerospace assembly and coating operations, which include coating removal (stripping), surface preparation and cleaning, and application equipment cleanup material. The proposed amendments to this rule will lower the solvent VOC limit for cleaning application equipment to 25 g/l.

**Rule 463, Wood Products Coatings:** This rule regulates VOC emissions from wood coating operations, including strippers used on wood products and surface preparation and cleanup materials. The proposed amendments will reduce the VOC limit for surface preparation and cleanup materials to 25 g/l. Additionally, Staff proposes to restrict the use of the emissions averaging provisions to non-major sources and allow only a

maximum of 20 gallons per year of historical reproduction coatings.

**Rule 464, Organic Chemical Manufacturing Operations:** This rule limits VOC emissions from organic chemical plants. Cleanup activities, which include maintenance solvent cleaning and in-line solvent cleaning of process units and piping, are regulated under this rule. The solvent cleaning requirements for Rule 464 are found under the cleanup and storage requirements section. The proposed amendments will reduce the VOC limit for maintenance cleaning solvent to 25 g/l.

**Rule 465, Polyester Resin Operations:** This rule regulates emissions from polyester resin operations. Polyester resin operations include but are not limited to bathtub, shower, and sink manufacturers, spa and boat manufacturers, and tomato bin manufacturers, and include cleaning materials. The proposed amendments will reduce the VOC limit for cleaning materials to 25 g/l. Additionally, Staff proposes to increase the emissions control equipment efficiency requirement to 90%.

**Rule 466, Solvent Cleaning:** This rule applies to cleaning activities such as the cleaning of electrical and electronic components, medical devices and pharmaceuticals, and architectural coating application equipment, that are not regulated by the industry-specific coating/solvent cleaning rules (Rules 450, 451, etc.). The proposed amendments will:

- Lower the solvent VOC limits for several cleaning categories to as low as 25 g/l, and
- Add a new VOC standard of 200 grams per liter for the sterilization of food product manufacturing and processing equipment.
- Add an exemption for the cleaning of high-voltage microwave vacuum tubes.

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### Impact on Businesses and Public

The proposed solvent cleaning rule amendments will apply to various industry-specific solvent cleaning operations. The majority of the proposed solvent cleaning limits are not expected to result in additional costs to the industry because compliant products, which have been readily available for some time, do not cost more than the materials currently used.

The overall cost effectiveness of the rule amendments is \$3.70 per pound of VOC reduced for proposed Rule 450 and \$3.70 per pound of VOC reduced for proposed Rule 466. This value is within the range of costs imposed by previous District rules (\$1-18 per pound in today's dollars). Proposed Rules 451 and 456 are expected to yield cost savings. No cost increases are expected for the other five proposed rules.

Staff determined that no sources will be affected by the proposed CTG-recommended rule changes or other EPA-recommended changes. All sources subject to the CTG-based requirements are already in compliance with the proposed requirements. Many of the proposed CTG-based changes either involve operations that are not conducted by

any sources within the District, or apply to sources larger than those currently in operation.

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### **District Impacts**

The proposed amendments are not expected to result in additional costs to the District. Sources affected by the rule amendments are already subject to requirements under the existing rules.

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### **Emission Impacts**

The proposed amendments will achieve an emission reduction of at least 195.6 tons per year of VOC. A discussion of the emission reductions for each individual rule is included in the staff report (Attachment C of this Board package).

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### **Environmental Review and Compliance**

Staff finds that the proposed rules are exempt from the California Environmental Quality Act as an action by a regulatory agency for protection of the environment (Class 8 Categorical Exemption, Section 15308 State CEQA Guidelines) and because it can be seen with certainty that there is no possibility that the activity in question may have a significant adverse effect on the environment (Section 15061(b)(3), State CEQA Guidelines).

California Public Resources Code (Section 21159) requires an environmental analysis of the reasonably foreseeable methods of compliance. Compliance is expected to be achieved by the replacement of current cleaning solvents with compliant products. Compliant products may contain higher levels of exempt compounds, but these exempt compounds are generally less toxic than the VOC solvents they replace. The proposed rules will not increase emissions and will not cause any other significant adverse effects on the environment; therefore Staff has concluded that no environmental impacts will be caused by compliance with the proposed rules.

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### **Public Outreach**

Staff conducted a public workshop on April 28, 2008. The noticing for this workshop included:

- 3,409 notices mailed to all permitted stationary sources, printing facilities listed in the Sacramento County business directories, automotive repair shops listed in the Bureau of Automotive Repair database;
- A display ad in the Sacramento Bee; and
- Notices mailed to those who have requested rulemaking notices.

Several individual meetings were held with affected businesses and industry

representatives, including SMUD, Dome Printing, Printing Industries of California, and Lyondell Chemical Company. Staff also made phone calls to individual sources to determine whether the new CTG-based requirements and other changes proposed after the workshop would impact those sources.

A notice of public hearing was published in the Sacramento Bee on August 25, 2008. The notice was also mailed to attendees of the public workshop and to the mailing list that was developed for the public workshop.

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### **Changes Made in Response to Comments**

Staff received several comments from the workshop, comments from meeting with members of industry, and written comments submitted after the workshop by industry, the Air Resources Board, and EPA. A summary of the comments and Staff's responses is included in Appendix D of the staff report (Attachment C of this Board package). Written comment letters are included in Attachment D.

At the public workshop, Staff proposed an effective date of January 1, 2010, for several application equipment cleaning categories in proposed Rule 450, Graphic Arts Operations. Staff received several requests from the printing industry to extend the effective date to allow additional time for the industry to successfully transition to lower-VOC products. Staff accommodated these requests and delayed the effective date by one year, to January 1, 2011.

In response to other comments, Staff has revised the proposed recordkeeping requirements in Rule 450 that include separate records for newsprint and non-newsprint substrates. The proposed language now does not require separate records to be maintained for presses that use solvents that meet the more stringent VOC limits.

In response to comments from a source, Staff included an exemption in Rule 454, Degreasing Operations, for the cleaning of high-voltage microwave vacuum tubes. Staff had proposed a similar exemption for such devices in Rule 466, Solvent Cleaning, which covers handwiping. The proposed exemption in Rule 454 will allow the source to effectively clean these devices by soaking them in solvents in addition to handwiping. Staff conducted research and agreed with the source that the use of low VOC solvents for cleaning these devices is technologically infeasible.

In response to comments from an aerospace coating source, Staff extended by one year the requirement to use solvents containing 25 g/l or less of VOC to clean application equipment in Rule 456, Aerospace Assembly and Component Coating Operations. Until two years after the date of adoption, aerospace coating operations will be allowed to continue to use enclosed gun cleaners in lieu of complying with the VOC limit. The source demonstrated the need for this extension to allow sufficient time to test and requalify substitute solvents for aerospace coatings, including multi-part epoxies and polyurethane materials.

Other changes include revisions to rule language to clarify intent, changes made in response to potential approvability issues identified by EPA, changes made to address RACT requirements, and specific changes recommended by CARB.

The Printing Industries of California submitted comments on Rule 450 requesting that the District: 1) remove the current provision that limits the usage of metering roller/printing plate cleaners to 15% of the volume of blanket/roller washes, and 2) retain the option to use solvents with low vapor pressure instead of solvents with low VOC content. Regarding the first request, Staff has already proposed to sunset the 15% limitation at the same time as the new VOC limits for metering roller/printing plate cleaners take effect, and has included an exemption for sources that can comply with the future VOC limits earlier. However, the 15% limitation that has been in effect since March 23, 2000, must stay in place until the more stringent VOC limits take effect to avoid a relaxation of the current rule. Regarding the second request, Staff has determined that the emission reductions that will be achieved from the use of solvents meeting the proposed VOC limits are much greater than could be achieved through the use of low vapor pressure solvents. The VOC content limits have already been demonstrated to be feasible in the SCAQMD. Therefore, Staff has not changed the proposed rule in response to these comments.

SMUD submitted a comment on Rule 466 requesting that the District provide an exemption for the cleaning high-voltage gloves, hot sticks, rubber blankets, line hoses, mechanical jumpers, insulator covers, and high-voltage test equipment leads. These items protect personnel from electrocution while working on energized circuits or equipment, and SMUD is concerned that lower VOC-content products may not clean the surface as thoroughly and leave a residue allowing tracking and flashover of the device. Staff has determined that compliant products (aerosol products) are readily available and have been successfully used by electrical utilities in SCAQMD. These aerosol cleaners are exempt from Rule 466 when used in quantities of 160 fluid ounces or less per day. Therefore, Staff has not changed the proposed rule in response to this comment.

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**Conclusion**

The proposed amendments will achieve significant VOC emission reductions that will help the District attain the federal 8-hour ozone standard, and will fulfill a state plan commitment to adopt more stringent solvent cleaning standards based on “all feasible measures.” The proposed amendments will also satisfy federal RACT and other requirements that will allow EPA to approve them for inclusion in the SIP. The costs to affected sources are relatively low compared to other District rules and in some cases will result in cost savings. Staff recommends that the Board determine that the proposed rules are exempt from CEQA and approve the attached resolutions adopting the rules as proposed.

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Respectfully submitted,

Approved as to form:

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Larry Greene  
Executive Director/Air Pollution Control Officer

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Kathrine Pittard  
District Counsel

Attachments