

**AIR QUALITY**  
MANAGEMENT DISTRICT

**THESE SUGGESTED FORMS MAY BE USED  
TO COMPLY WITH THE RECORDKEEPING  
REQUIREMENTS OF RULE 450**  
(Graphic Arts Operations)

- Form 450A List of Currently Used Materials
- Form 450B Monthly Usage and Emissions Record
- Form 450B Sup Quarterly Emissions Summary
- Form 450C Monthly Usage Record of Materials Used  
Exceeding the VOC Limits
- Form 450D Daily Usage Record of Non-Compliant Materials
- Form 450E Monthly Usage and Emissions Record for Exempt  
Graphic Arts Operations

*YOU MAY REPRODUCE THESE FORMS AS NEEDED.*

## DEFINITIONS OF MATERIALS USED IN GRAPHIC ARTS OPERATIONS

MATERIAL TYPE	DEFINITION
Adhesive	Any substance used to bond one surface to another surface by attachment.
Coating	A layer of material, excluding adhesives, applied across the entire width of a substrate. For example, in printing, an emulsion, varnish or lacquer applied over a printed surface, and in platemaking, the light-sensitive polymer or mixture applied to a metal plate.
Electronic Circuit	A product, which consists of a substrate and a circuitry, created by screen printing a conductive ink on the substrate.
Extreme Performance Ink/Coating	An ink or coating, used in screen printing on a non-porous substrate, that is designed to resist or withstand any of the following: 1) five or more years of outdoor exposure, or 2) exposure to industrial-grade chemicals, solvents, acids, or detergents, oil products (including fuels), cosmetics, temperatures exceeding 76°C (170°F), vacuum forming, embossing or molding.
Fountain Solution	The solution applied to the image plate to maintain the hydrophilic properties of the non-image areas and to keep the non-image area free from ink. Fountain solution is primarily water and contains at least one of the following materials: 1) etchants such as mineral salts; 2) hydrophilic gums; or 3) VOC additives to reduce the surface tension of the solution.
Blanket and Roller Washes	Cleaning materials, which are used to remove the printing inks, oils, and paper pieces from the blankets and rollers excluding metering rollers and plates.
Mechanically Formed Products	Screen-printed products made of plastic substrates which are subjected to vacuum-forming, embossing, inflating, heat bending, or cold bending processes after the screen printing operation.
Metallic Ink	An ink that contains greater than 50 grams of metal per liter (0.4 lb/gal) of ink.
Overlay	A screen-printed product made of polycarbonate, polyester, or clear vinyl plastic substrate which activates the circuitry of an electronic circuit underneath it when pressed against the electronic circuit. Overlays and electronic circuits are used in membrane switches of products such as computer keyboards, calculators, control panels, and home appliances.
Printing Ink	A pigmented fluid or viscous material used in printing.
Sign Ink/Coating	A printing ink or coating used in screen printing indoor and outdoor signs (excluding structural components) and murals, including lettering enamels, poster colors, copy blockers, and bulletin enamels.
Water Slide Decals	Decals which are screen printed onto treated paper stock, and are removable from the stock by the dissolution of an underlying, water-soluble adhesive or a similar carrier.

**SACRAMENTO METROPOLITAN AIR QUALITY MANAGEMENT DISTRICT**

**RULE 450 – GRAPHIC ARTS OPERATIONS**

**LIST OF CURRENTLY USED MATERIALS**

P/O # \_\_\_\_\_

RULE 450 MATERIAL TYPE PER SECTIONS 301 & 302.1 (INDICATE MANUFACTURER, PRODUCT NAME AND PRODUCT CODE)	VOC CONTENT AS APPLIED <b>EXCLUDING</b> WATER & EXEMPT COMPOUNDS <b>g/l (lb/gal)</b> [A]	VOC CONTENT AS APPLIED <b>INCLUDING</b> WATER & EXEMPT COMPOUNDS <b>g/l (lb/gal)</b> [B]	DENSITY OF INK <b>lb/gal</b>	MIXING RATIO FOR MATERIAL AS APPLIED (IF APPLICABLE)	SUBSTRATE TO WHICH MATERIAL IS APPLIED (FOR SCREEN PRINTING AND EXTREME PERFORMANCE INKS ONLY)	% VOC BY WT AND TYPE OF OPERATION ADHESIVE IS USED (FOR AEROSOL ADHESIVES EXEMPT UNDER SECT 110.6)
1.						
2.						
3.						
4.						
5.						
6.						
7.						
8.						
9.						
10.						

[A] VOC content for inks, coatings and adhesives. Used to demonstrate compliance with the VOC content limits in Rule 450, Section 301.1.

[B] VOC content for fountain solutions and materials for solvent cleaning. Used to demonstrate compliance with the VOC content limits in Rule 450, Sections 301.2 & 302.1 and to calculate ROC emissions for inks, coatings, adhesives, fountain solutions and materials for solving cleaning.

**SACRAMENTO METROPOLITAN AIR QUALITY MANAGEMENT DISTRICT**

**RULE 450 – GRAPHIC ARTS OPERATIONS**  
**MONTHLY USAGE AND EMISSIONS RECORD**  
**OF ALL GRAPHIC ARTS MATERIALS USED**

MONTH \_\_\_\_\_ 20 \_\_\_\_\_

P/O # \_\_\_\_\_

RULE 450 MATERIAL TYPE PER SECTIONS 301 & 302.1 (INDICATE MANUFACTURER, PRODUCT NAME AND PRODUCT CODE) <i>Refer to definitions at the back</i>	TOTAL APPLIED WEIGHT OR VOLUME lb/month or gal/month [A]	DENSITY lb/gal  [B]	VOC CONTENT AS APPLIED INCL WATER & EXEMPT COMPOUNDS lb/gal or % VOC [C]	INK RETENTION FACTOR  [D]	MONTHLY ROC EMISSIONS lb/month  [E]
1.					
2.					
3.					
4.					
5.					
6.					
7.					
8.					
9.					
10.					
<b>ROC EMISSIONS, lb/month</b>					
<b>ROC EMISSIONS, lb/quarter (TO-DATE)</b>					

- [A] Volume or weight after mixing, if applicable, to include additives and makeup solvents for inks, coatings and adhesives, and water for fountain solutions. Typically, the unit of measurement for inks and coatings is in lb.
- [B] Density of ink or coating.
- [C] Also known as Material VOC. Used to calculate ROC emissions.
- [D] Ink retention factors: Non-Heatset Inks - 95% and Heatset Inks - 20%.
- [E] ROC Monthly Emissions =  $[A] \div [B] \times [C] \times [1 - D]$  or  $[A] \times [C] \times [1 - D]$

*For assistance with this form, please call the SMAQMD's Compliance Assistance Hotline at 279-207-1122 ext 99*

**SACRAMENTO METROPOLITAN AIR QUALITY MANAGEMENT DISTRICT**

**RULE 450 – GRAPHIC ARTS OPERATIONS**

**QUARTERLY EMISSIONS SUMMARY**

YEAR \_\_\_\_\_

P/O # \_\_\_\_\_

FIRST QUARTER	
MONTH	MONTHLY EMISSIONS (May be obtained from FORM 450B)
January	
February	
March	
TOTAL QUARTERLY ROC EMISSIONS, LB/QUARTER	

SECOND QUARTER	
MONTH	MONTHLY EMISSIONS (May be obtained from FORM 450B)
April	
May	
June	
TOTAL QUARTERLY ROC EMISSIONS, LB/QUARTER	

THIRD QUARTER	
MONTH	MONTHLY EMISSIONS (May be obtained from FORM 450B)
July	
August	
September	
TOTAL QUARTERLY ROC EMISSIONS, LB/QUARTER	

FOURTH QUARTER	
MONTH	MONTHLY EMISSIONS (May be obtained from FORM 450B)
October	
November	
December	
TOTAL QUARTERLY ROC EMISSIONS, LB/QUARTER	

[A] Monthly ROC emissions are the total emissions from all types of graphic arts materials used.

**SACRAMENTO METROPOLITAN AIR QUALITY MANAGEMENT DISTRICT**

**RULE 450 – GRAPHIC ARTS OPERATIONS**

**MONTHLY USAGE RECORD OF MATERIALS USED**

**EXCEEDING THE VOC CONTENT LIMITS IN SECTIONS 301 AND 302.1**

MONTH \_\_\_\_\_ 20 \_\_\_\_\_

P/O # \_\_\_\_\_

RULE 450 MATERIAL TYPE PER SECTIONS 301 & 302.1 (INDICATE MANUFACTURER, PRODUCT NAME AND PRODUCT CODE) <i>Refer to definitions at the back</i>	TOTAL APPLIED WEIGHT OR VOLUME <b>lb/month or                      gal/month</b> [A]	ACTUAL VOC CONTENT AS APPLIED EXCLUDING WATER & EXEMPT COMPOUNDS <b>g/l (lb/gal)</b>	VOC CONTENT STANDARD AS SPECIFIED IN SECTIONS 301 & 302.1 <b>g/l (lb/gal)</b>
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			

[A] Volume or weight after mixing, if applicable, to include additives and makeup solvents for inks, coatings and adhesives and water for fountain solutions. Typically, the unit of measurement for inks and coatings is in lb.

**SACRAMENTO METROPOLITAN AIR QUALITY MANAGEMENT DISTRICT**

**RULE 450 – GRAPHIC ARTS OPERATIONS**

**DAILY USAGE RECORD OF NON-COMPLIANT MATERIALS**

YEAR \_\_\_\_\_

P/O # \_\_\_\_\_

DATE			RULE 450 MATERIAL TYPE PER SECTIONS 301 & 302.1 (INDICATE MANUFACTURER, PRODUCT NAME & PRODUCT CODE) <i>Refer to definitions at the back</i>	ACTUAL VOC CONTENT AS APPLIED EXCLUDING WATER & EXEMPT COMPOUNDS <b>g/l (lb/gal)</b>	TOTAL APPLIED WEIGHT OR VOLUME <b>lb/day or gal/day</b>
MO	DAY	YR			
			1.		
			2.		
			3.		
			4.		
			5.		
			6.		
			7.		
			8.		
			9.		
			10.		
			11.		
			12.		

Note: 1. NON-COMPLIANT MATERIAL is a material that: (a) exceeds the VOC content limit as specified in Rule 450, Sections 301 & 302.1; (b) is not exempt pursuant to Section 110; (c) does not use an alternative compliance option pursuant to Rule 107, Alternative Compliance; and (d) does not use an emission control equipment pursuant to Section 303.

2. Section 110: A graphic arts operation is EXEMPT from the requirements of Rule 450, with the exception of Sections 302 & 501.1 (a) through (g) and 501.3 (b)(3) if the source either has an ACTUAL EMISSIONS of less than or equal to 60 lb of VOC per calendar month or a POTENTIAL TO EMIT of less than or equal to 175 lb of VOC per calendar month.

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**SACRAMENTO METROPOLITAN AIR QUALITY MANAGEMENT DISTRICT**

**RULE 450 – GRAPHIC ARTS OPERATIONS**

**MONTHLY USAGE AND EMISSIONS RECORD FOR GRAPHIC ARTS OPERATIONS**  
**EXEMPT PURSUANT TO RULE 450, SECTIONS 110.1(A) OR 110.1(B) & 110.7**

MONTH \_\_\_\_\_ 20 \_\_\_\_\_

P/O # \_\_\_\_\_

RULE 450 MATERIAL TYPE PER SECTIONS 301 & 302.1 (INDICATE MANUFACTURER, PRODUCT NAME AND PRODUCT CODE) <i>Refer to definitions at the back</i>	TOTAL APPLIED WEIGHT OR VOLUME lb/month or gal/month [A]	DENSITY lb/gal [B]	VOC CONTENT AS APPLIED INCL WATER & EXEMPT COMPOUNDS lb/gal or % VOC [C]	INK RETENTION FACTOR [D]	MONTHLY ROC EMISSIONS lb/month [E]
1.					
2.					
3.					
4.					
5.					
6.					
7.					
8.					
9.					
10.					
<b>ROC EMISSIONS, lb/month</b>					

[A] Volume or weight after mixing, if applicable, to include additives and makeup solvents for inks, coatings and adhesives and water for fountain solutions. Typically, the unit of measurement for inks and coatings is in lb.

[B] Density of ink or coating.

[C] Also known as Material VOC. Used to calculate ROC emissions.

[D] Ink retention factors: Non-Heatset Inks - 95% and Heatset Inks - 20%.

[E] ROC Monthly Emissions = [A] ÷ [B] x [C] x [1 - D] or [A] x [C] x [1 - D]