VENTURA COUNTY AIR POLLUTION CONTROL DISTRICT
4567 Telephone Rd, Ventura CA 93003 805/ 303-4005 FAX 805/ 456-7797 www.vcapcd.org

PERMIT APPLICATION PACKAGE FOR SCREEN PRINTING OPERATIONS

Screen printing is a process in which printing ink, coating, or adhesive material is passed through a taut web or fabric to which a refined form of stencil has been applied. The stencil openings determine the form and dimensions of the imprint (Rule 74.19.1 Subsection G.25).

Screen printing equipment is used for applying screen printing materials, including the flash-off area, ovens or dryers, conveyors, or other equipment operating as part of screen printing operations (Rule 74.19.1 Subsection G.26).

Screen printing materials refer to any inks, coatings, or adhesives, including added thinners or additives, used in screen printing (Rule 74.19.1 Subsection G.27).

Screen printing operations include screen printing and any subsequent drying, curing, or conveying of the screen-printed substrate (Rule 74.19.1 Subsection G.28).

- APCD Rule 74.19.1 applies to anyone who uses any ink, coating, adhesive, resist, or solvent containing ROC (reactive organic compounds) for use in a screen printing operation. The Rule also applies to anyone who manufactures, specifies the use of, sells, or offers for sale any of these materials for use in a screen printing operation in Ventura County. Rule 74.19.1 does not apply to the production of electronic circuits.

- Screen printing operations with total facility emissions of less than 200 pounds of ROC per rolling period of 12 consecutive calendar months from screen printing materials are exempt from the ROC limits on screen printing materials and cleaning solvents (Rule 74.19.1 Subsection C.1) but may not be exempt from the requirement to obtain a Permit to Operate. A screen printing operation meeting the following conditions is exempt from the requirement to obtain a Permit to Operate as detailed in Rule 23.F.13:

  An operation where less than 200 pounds of ROC, methylene chloride, 1,1,1 trichloroethane, and perchloroethylene are lost to the atmosphere during any rolling period of 12 consecutive calendar months.

  For the purpose of this section, screen printing operations shall include solvent loss from inks, ink additives, resists, substrate surface preparation, application equipment cleaning, coatings, and adhesives for binding or gluing printed substrates, associated with the ink operation. Aerosol products shall not be included in this determination.

- Screen printing operations may use an emission capture and control system to control emissions in lieu of meeting the ROC limits for inks, coatings, resists, and adhesives (Rule 74.19.1 Subsection B.4).

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Using a separate entry on page one of the Screen Printing Operations Form, Form ScreenPrint001, for each screen printing machine or process, supply the following information for the APCD to determine compliance with Rule 74.19.1 and process the application:

1) Identify the manufacturer and manufacturer's model number for the screen press unit.

2) Drying Method: (Unheated [using unheated ambient air], Heater or Dryer [using infrared radiation], Oven [using gas or electrically heated air, electron beam, or ultraviolet])
   - If an air dryer or blower, heater or dryer, or oven is used for drying, identify the manufacturer and manufacturer's model number
   - If a natural gas-fired oven is used, provide the heat input rating in million Btu's per hour.

3) Indicate the type of ROC Control Equipment for the screen press unit: (none, carbon adsorption, thermal incineration or catalytic incineration)

Use as many Inks, Coatings, Adhesives, and Resists Data Sheets, page 2 of Form ScreenPrint001, as necessary to supply the requested information on ROC containing inks, coatings, resists, and adhesives used. Supply a material safety data sheet (MSDS) or product specification sheet for each material that you use. Be sure to indicate on this attachment which inks, coatings, or adhesives, if any, are used in or on water slide decals or ceramic decals.

Use as many Solvent Data Sheets, page 3 of Form ScreenPrint001, as necessary to supply the requested information on ROC containing solvents used. Supply a material safety data sheet (MSDS) or product specification sheet for each material that you use.

LIMITS OF RULE 74.19.1

If the ROC content of any material, as used, exceeds the ROC content or applicable partial pressure limits listed in the table below, and emissions from screen printing materials exceed 200 pounds of ROC per rolling period of 12 consecutive calendar months, you are in violation of Rule 74.19.1.

SCREEN PRINTING MATERIAL	ROC LIMIT	
	grams/liter	lbs/gal
Printing Ink	400	3.3
Coating	400	3.3
Adhesive	400	3.3
Metallic Inks	600	5.0
Resists	600	5.0
Extreme Performance Inks and Coatings	800	6.7

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PRODUCT/SUBSTRATE (limits for inks, coatings, adhesives)

	ROC LIMIT	
	grams/liter	lbs/gal
Water Slide Decals	800	6.7
Ceramic Decals	800	6.7

	ROC Composite Partial Pressure mmHG at 20°C (68°F)	ROC LIMIT grams/liter	lbs/gal
SOLVENT CLEANING ACTIVITY			
Surface Preparation Prior to Application	25	200	1.67
Clean-up (Excluding Application Equipment)	25	200	1.67
Spotting Fluid For Plastisol Ink Removal	25	400	3.30
Application Equipment Cleaning:			
Process Cleaning or Screen Opener	5	1070	8.92
Ink Removal for Color Change or Storage	5	950	7.92

Note that the ROC limits for inks, coatings, adhesives, and resists are expressed in grams per liter (g/l) or pounds per gallon (lbs/gal) of coating less water and less exempt organic compounds. The ROC limits for cleaning solvents are expressed in grams per liter or pounds per gallon of material.

"Metallic Inks:"
Inks containing at least 50 grams of metal per liter (0.4 lb/gal) as applied, and that are not used in the manufacture of an electronic circuit.

"Resists:"
Inks that; a) form the required alphabets, numerals, designs, or symbols on the surface of the substrate; b) protect the screen printed or covered surface from the subsequent application of etching or plating solution; and c) are later removed from the substrate by a resist stripper. Resists applications include, but are not limited to, etched electronic circuits, display screens, chemical milling of parts, nameplates and signage.

"Extreme Performance Inks and Coatings:"
Inks or coatings used in screen printing on a non-porous substrate that is designed to resist or withstand any of the following: more than two years of outdoor exposure; exposure to industrial grade chemicals, solvents, acids, detergents, oil products, or cosmetics; temperatures exceeding 76 degrees Celsius (169oF); vacuum forming; embossing, or molding.
"Water Slide Decals:"
Decals which are screen printed onto treated paper stock, and that are removable from the stock by the dissolution of an underlying, water-soluble adhesive or a similar carrier.

"Ceramic Decals:"
Water-slide decals which are used to transfer images onto ceramic materials by firing above 800^{o}F.

"Surface Preparation:"
The removal of contaminants from a substrate prior to coating, adhesive or ink application. Surface preparation does not include the removal of cured coatings.

"Cleanup:"
The removal of uncured coating, adhesive or ink from any surface, oversprayed surfaces, and hands, excluding application equipment.

"Process Cleaning:"
The removal of uncured coating, adhesive or ink from application equipment during the screen printing operation. This would include the use of a screen opener.

"Ink Removal:"
Final cleaning of application equipment prior to color change or storage of the application equipment.

Annual Usage Limitations

A Permit to Operate for a screen printing operation will include usage limitations for each of the following four categories: a) inks and coatings, b) adhesives, c) resists, and d) associated solvents.

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RULE 74.19.1, SCREEN PRINTING OPERATIONS
PERMIT APPLICATION SUPPLEMENTARY PACKAGE

Please make as many copies as necessary so that a separate section is completed for each printing press.

Information on First Printing Press

Manufacturer of Printing Equipment		
Model of Printing Equipment		
Drying Method	☐ Unheated ☐ Infrared Heater/Dryer ☐ Ultraviolet Oven	☐ Natural Gas Oven ☐ Electric Oven ☐ Electron Beam Oven
Manufacturer of Dryer		
Model of Dryer		
Maximum Heat Input Rating of Dryer – **For Natural Gas Fired Ovens Only** (Specify Units)	_____	☐ Million BTUs Per Hour ☐ Other _____
VOC Control Equipment	☐ None ☐ Thermal Incinerator	☐ Carbon Adsorption ☐ Catalytic Incinerator

Information on Additional Printing Press (If any)

Manufacturer of Printing Equipment		
Model of Printing Equipment		
Drying Method	☐ Unheated ☐ Infrared Heater/Dryer ☐ Ultraviolet Oven	☐ Natural Gas Oven ☐ Electric Oven ☐ Electron Beam Oven
Manufacturer of Dryer		
Model of Dryer		
Maximum Heat Input Rating of Dryer – **For Natural Gas Fired Ovens Only** (Specify Units)	_____	☐ Million BTUs Per Hour ☐ Other _____
VOC Control Equipment	☐ None ☐ Thermal Incinerator	☐ Carbon Adsorption ☐ Catalytic Incinerator

For more than two printing presses, use additional forms.

RULE 74.19.1, SCREEN PRINTING OPERATIONS

INKS, COATINGS, RESISTS, AND ADHESIVES DATA SHEET

Complete one line for each ink, coating, resist, or adhesive. Use additional sheets if necessary to report all products.

Type Code (see below)	Manufacturer Name	Product Name or Code	VOC Content [1] As Applied (Lbs/Gal) [2]	Water Slide or Ceramic Decals[3]	Proposed Maximum Annual Usage (Gal/Year)
				❑ Yes ❑ No	
				❑ Yes ❑ No	
				❑ Yes ❑ No	
				❑ Yes ❑ No	
				❑ Yes ❑ No	
				❑ Yes ❑ No	
				❑ Yes ❑ No	
				❑ Yes ❑ No	
				❑ Yes ❑ No	

1 – VOC Content must be specified less water and exempt organic compounds.
2 – To convert from "Grams per Liter" to "Pounds per Gallon", divide by 120.
3 – Indicate whether the ink, coating or adhesive is used in or on water slide decals or ceramic decals

Type Code	Description
I	Ink
C	Coating
A	Adhesive
PA	Aerosol Platen Adhesive
M	Metallic Ink
R	Resist
XI	Extreme Performance Ink
XC	Extreme Performance Coating

NOTE: Manufacturer's supporting VOC documentation which details the VOC content, as applied, in grams per liter or pounds per gallon, less water and less exempt organic compounds, must be submitted for each ink, coating, resist, and adhesive.

RULE 74.19.1, SCREEN PRINTING OPERATIONS

SOLVENTS DATA SHEET

Complete one line for each solvent. Use additional sheets if necessary to report all products.

Type Code (see below)	Manufacturer Name	Product Name or Code	VOC Content As Used (Lbs/Gal) [2]	Solvent Vapor Pressure (mmHg @ 20°C)	Proposed Maximum Annual Usage (Gal/Year)

1 – To convert from "Grams per Liter" to "Pounds per Gallon", divide by 120.

Type Code	Description
SP	Surface Preparation of Substrate
CU	Clean-up, Excluding Application Equipment
SF	Spotting Fluid to Remove Cured Plastisol Ink
PC	Process Cleaning of Application Equipment, including Screen Opener
IR	Ink Removal of Application Equipment

NOTE: Manufacturer's supporting VOC documentation which details the VOC content, as applied, in grams per liter or pounds per gallon, and the solvent composite vapor pressure in mmHg, must be submitted for each solvent.