VENTURA COUNTY AIR POLLUTION CONTROL DISTRICT

RULE 74.19 - GRAPHIC ARTS
(Adopted 8/11/92, Revised 9/10/96, 4/10/2001, 11/11/2003, 06/14/2011)

A. Applicability

The provisions of this rule apply to:

1. Any person who applies any ink, coating, adhesive, fountain solution, or solvent containing Reactive Organic Compounds (ROC) as part of a graphic arts operation.

2. Any person who manufactures or supplies any ink, coating, adhesive, fountain solution, or solvent containing ROC sold for use in a graphic arts operation in the District.

B. Requirements

1. Inks, Coatings, and Adhesives: No person shall apply the following inks, coatings, or adhesives with an ROC content in excess of the following limits:

ROC Limits
Grams of ROC per Liter (Pounds of ROC per Gallon) of Coating, Ink, or Adhesive, Less Water and Exempt Organic Compounds

Category	Limits
Inks	300 (2.5)
Flexographic Inks on Porous Substrates	225 (1.88)
Coatings	300 (2.5)
Adhesives	150 (1.25)

For low-solids inks, coatings or adhesives, which have 120 grams per liter (1 pound per gallon) or less of solids, the ROC content is on a grams per liter of material basis.

2. Fountain Solution: Until January 1, 2012, no person shall apply fountain solution with an ROC content in excess of the following limits:

Limits
Grams of ROC per Liter (Pounds of ROC per Gallon) of Material

Category	Effective Dates Limits
Fountain Solution	80 (0.67)
Fountain Solution-Refrigerated	100 (0.83)

The l00 g/l (0.83 lb/gal) limit shall only apply to refrigerated fountain solutions that are cooled to 55^{o}F or less at the supply tank. A visible or easily accessible

temperature readout shall be installed, and a sensor shall measure the fountain solution temperature at the supply tank connected to the operating press.

Effective January 1, 2012, no person shall apply any fountain solution with an ROC Content in excess of any of the following limits:

FOUNTAIN SOLUTION LIMITS BY PRINTING METHOD	LIMITS ROC CONTENT[1] (Percent by weight - applied	LIMITS ROC CONTENT (Grams per Liter - applied)
a. HEATSET WEB-FED OFFSET LITHOGRAPHIC PRINTING		
1) If no refrigeration and contains alcohol:	1.6	16
2) If refrigerated below 55°F and contains alcohol	3.0	30
3) If no alcohol in fountain solution	5.0	50
b. NON-HEATSET WEB-FED OFFSET LITHOGRAPHIC PRINTING (Use of alcohol prohibited in this fountain solution)	5.0	50
c. SHEET-FED LITHOGRAPHIC PRINTING if maximum sheet size is greater than 11X17 inches or if total solution reservoir is greater than one gallon:		
1) If no refrigeration and contains alcohol	5.0	50
2) If refrigerated below 55°F and contains alcohol	8.5	85
3) If no alcohol in fountain solution	5.0	50
d. ALL OTHER PRESSES NOT LISTED ABOVE		
1) If no refrigeration	8.0	80
2) If refrigerated below 55°F	10.0	100

Any refrigerated chiller used shall be equipped with a visible or easily accessible temperature gauge, and the sensor shall measure the fountain solution temperature at the supply tank connected to the operating press.

Effective January 1, 2012, no person shall use any fountain solution that contains alcohol in any Non-Heatset web-fed offset lithographic printing operation.

[1] The ROC Content of Fountain Solutions is based on the ROC weight divided by the full weight of the applied solution including any exempt compounds.

3. Until January 1, 2012, no person shall use a solvent to perform solvent cleaning in excess of the applicable ROC content and ROC Composite Partial Pressure limits set forth below:

SOLVENT CLEANING ACTIVITY	LIMITS ROC g/l (lb/gal) of Material		LIMITS ROC Composite Partial Pressure mm Hg @ 20°C
a. Surface Preparation	70 (0.58)		Not Applicable
b. Repair and Maintenance Cleaning	50 (0.42)		Not Applicable
c. Cleaning of Coatings or Adhesives Application Equipment	950 (7.9)	AND	33
d. Cleaning of Ink Application Equipment			
1) General, unless listed below	100 (0.83)	AND	3
2) Flexographic Printing			
a)Specialty Flexographic	810 (6.8)	AND	21
b)Other Flexographic	100 (0.83)	AND	3
3) Gravure Printing			
a)Publication	900 (7.5)	AND	25
b)Packaging	100 (0.83)	AND	3
4) Lithographic or Letter Press Printing			
a)Roller Wash -	300 (2.5)	OR	10
b)Blanket Wash	300 (2.5)	OR	10
c)Metering Roller Cleaner	300 (2.5)	OR	25
d)Plate Cleaner	300 (2.5)	OR	25
5) Radiation Curing Ink	800 (6.7)	AND	33

Effective January 1, 2012, no person shall use a solvent to perform solvent cleaning in excess of the applicable ROC content limits set forth below:

SOLVENT CLEANING ACTIVITY	LIMITS ROC Content (as applied) Grams of ROC per Liter of Material g/l (lb/gal)
a. Surface Preparation of Substrate	25 (0.21)
b. Repair and Maintenance Cleaning	25 (0.21)
c. Other Press Parts	25 (0.21)
d. Cleaning of Coatings or Adhesives Application Equipment	25 (0.21)
e. Cleaning of Ink Application Equipment	
1) General, unless listed below	25 (0.21)
2) Flexographic Printing	
a)Specialty Flexographic	100 (0.83)
b)Other Flexographic	25 (0.21)
3) Gravure Printing	
a)Publication	100 (0.83)
b)Packaging	25 (0.21)
4) Lithographic or Letter Press Printing	
a)Roller Wash	100 (0.83)
b)Blanket Wash	100 (0.83)
c)Metering Roller Cleaner	100 (0.83)
d)Plate Cleaner	100 (0.83)
e)Removable Press Components	25 (0.21)
5) Radiation Curing Ink Removal	100 (0.83)

4. Cleaners Containing Methylene Chloride: No person shall use a solvent for cleaning purposes if that cleaner contains any methylene chloride.

5. No person shall perform cleaning operations unless one of the following cleaning devices or methods is used:

   a. Wipe cleaning;

   b. Remote reservoir cold cleaner;

   c. Spray bottles or containers with a maximum capacity of 16 fluid ounces from which solvents are applied without propellant-induced force;

   d. Cleaning equipment utilizing a closable solvent container. The solvent container shall remain closed during cleaning operations, except when depositing and removing objects to be cleaned, and during non-operation, except when performing maintenance and repair to the cleaning equipment.

1) If a solvent flow method is used, the solvent shall not be atomized.

2) If a solvent flushing method is used, the solvent shall be flushed through the system by pumping.

6. In lieu of complying with the requirements of Subsection B.1, emissions of ROC, excluding emissions from clean up operations, may be controlled by an emission capture and control system, which reduces ROC emissions to the atmosphere, provided that:

   a. During any period of continuous operation not to exceed 24 hours, the capture and control system shall have a combined efficiency of at least 85 percent, by weight, for publication gravure and at least 80 percent, by weight, for other types of printing operations; and,

   b. The collection system shall vent all drying oven exhaust to the control device and shall have one or more inlets for collection of fugitive emissions; and,

   c. ROC emissions are no greater than emissions if compliant inks, coatings, and adhesives as per Subsection B.1 were used; and,

   d. During any period of operation of a thermal or catalytic incinerator, combustion temperature shall be continuously monitored; and,

   e. Written approval for such equipment, in the form of an Authority to Construct and Permit to Operate, is received from the Air Pollution Control Officer (APCO).

7. All ROC-containing materials including used cleaning towels shall be stored in closed containers that are nonabsorbent and do not leak.

8. Waste ROC materials shall be disposed of in a manner consistent with Federal, State, and local hazardous waste regulations.

9. The manufacturer of any ink, coating, adhesive, fountain solution, or solvent subject to this rule shall include the following information on the product container or a data sheet supplied with the product:

   a. Material name, manufacturer identification, specific mixing instructions (if applicable).

   b. VOC content

1) The VOC content of inks, coatings, and adhesives expressed as grams per liter (or pounds per gallon), less water and less exempt organic compounds. For low-solids inks, coatings or adhesives, the VOC content is expressed as grams per liter of material.

2) The VOC content of fountain solutions and solvents expressed as grams per liter (or pounds per gallon) or percent by weight of material, and if applicable, the recommended application dilution ratio.

c. Until January 1, 2012, the VOC composite partial pressure expressed as mm HG at 20^{o}C, if applicable.

d. The density of the material expressed as grams per liter (or pounds per gallon).

e. The solids content of all low-solids inks, coatings or adhesives, expressed as grams per liter (or pounds per gallon).

For the purposes of this Subsection, the term "VOC" is equivalent to the term "ROC".

10. Prohibition of Specification: No person shall specify or require the use of any ink, coating, adhesive, solvent cleaner, or fountain solution, in a graphic arts operation subject to the provisions of this rule that does not meet the limits and requirements of this rule.

C. Exemptions

1. The requirements of Subsections B.1, B.2, B.3, and B.4 shall not apply to:

a. Any stationary source that emits less than 200 pounds of ROC in every rolling period of 12 consecutive calendar months from graphic arts operations. Emissions from aerosol products, cold cleaners, and vapor degreasers shall not be included in this exemption determination. ROC emissions from graphic arts operations used exclusively for research, classroom instruction in schools, laboratory analysis, or determination of product quality and commercial acceptance shall not be included in this exemption determination.

b. Graphic arts operations used exclusively for research, classroom instruction in schools, laboratory analysis, or determination of product quality and commercial acceptance provided total emissions of ROC from such equipment are less than 200 pounds in any rolling period of 12 consecutive calendar months from printing, coating, adhesive, and solvent cleaning operations.

2. This rule shall not apply to:

   a. Screen Printing, which is subject to Rule 74.19.1.

   b. Operations which apply any ROC containing ink, coating, or adhesive on ceramic materials.

   c. Circuitry Printing.

   d. Operations using darkroom equipment associated with lithographic printing plate making.

   e. Operations which apply inks used to indicate that sterilization has occurred.

   f. Digital Printing Operations.

   g. Proof presses.

   h. Prepress operations such as the cleaning or processing of film processors, color scanners, plate processors, film cleaning, and plate developers.

   i. Blanket repair materials used in containers of four ounces or less.

   j. Aerosol coating products that are in compliance with regulations and requirements adopted by the California Air Resources Board (California Code of Regulations Title 17, Subchapter 8.5, Section 94522).

   k. Cleaning activities using Clean Air Solvents as defined in Section G.9.

3. The solvent cleaning requirements of Subsection B.3 shall not apply to cleaning solvents used to clean ultraviolet lamps and reflectors, or electron beam processors.

D. Recordkeeping Requirements.

Any person subject to this rule shall:

1. Maintain a current file for each ink, coating, and adhesive in use and in storage. The file shall include a data sheet or material list that provides material name, manufacturer identification, applicable product category from Subsection B.1, specific mixing instructions, and grams of ROC per liter (or pound of ROC per gallon) of coating (or ink or adhesive) less water and less exempt organic compounds, and grams of ROC per liter (or pounds of ROC per gallon) of material.

2. Maintain a current file for each fountain solution and cleaning solvent in use and in storage. The file shall include a data sheet or material list that provides material name, manufacturer identification, applicable solvent cleaning activity from Subsection B.3 for each cleaning solvent, specific mixing instructions if any, and grams of ROC per liter (or pounds of ROC per gallon) of material, and, if applicable until January 1, 2012, ROC composite partial pressure. The required data sheets for fountain solutions shall provide the ROC content, and minimum recommended dilution, which can be used to calculate the ROC content percent by weight, as applied or ROC content, grams per liter of material, applied.

3. Maintain records on a daily basis showing the amount of inks, coatings, adhesives, fountain solutions, and solvents used. If only compliant inks, coatings, adhesives, fountain solutions, and solvents are used, these records may be maintained on a monthly basis instead of a daily basis.

4. Any person claiming the exemption in subsections C.1.a. or C.1.b shall provide monthly records sufficient to substantiate this claim, as follows:

    a. Ink emission records shall be maintained using one of the following options and District-approved emission factors:

        1) Group the quantity of all inks used and use the highest ROC content, and the minimum density,

        2) Report process inks and pantone colors separately and:

            a) Use the specific ROC content and density values for each process ink and the highest ROC and the minimum density for pantone inks; or

            b) Use the highest ROC content and minimum density for both process and pantone inks.

        3) Itemize each ink and pantone color and use the specific ROC content and density value for each.

        For the purpose of subsection D.4.a, "minimum density" means the lowest weight per unit volume for inks in a reported group, or the default value of 1.01 kilograms per liter (8.44 pounds per gallon) where minimum density is unknown.

    b. Coating, adhesive, fountain solution, and solvent emission records shall be maintained by itemizing each coating, adhesive, fountain solution, and solvent and using the specific ROC content and density value for each.

5. If compliance is achieved through the use of emission control equipment maintain daily records of key system operating parameters for emission control equipment as specified in the Permit to Operate.

6. Inventory, usage, and emission control equipment operation records shall be retained for a minimum of two years and shall be made available to District Personnel upon request.

E. Test Methods

1. Measurement of the ROC and/or solids content of inks, coatings, adhesives, fountain solutions, and solvents, except publication gravure inks shall be conducted and reported in accordance with EPA Reference Method 24, Determination of Volatile Matter Content, Water Content, Density, Volume Solids and Weight Solids of Surface Coatings, and SCAQMD Method 303-91, Determination of Exempt Compounds, Revised February 1993 (EPA Approved August 1996), for determination of exempt compounds as necessary.

2. Measurement of the ROC content of publication gravure inks shall be conducted and reported in accordance with EPA Reference Method 24A, Publication Rotogravure Inks and Coatings, and SCAQMD Method 303-91, Determination of Exempt Compounds, Revised February 1993 (EPA Approved August 1996) for determination of exempt compounds as necessary.

3. If applicable, measurement of the ROC content of ultraviolet-cured inks shall be determined using ASTM Method D5403-93(2007) (EPA Approved 1993), Standard Test Methods for Density of Liquid Coatings, Inks, and Related Products. This method determines the ROC weight percent of inks designed to be cured by ultraviolet light. Calculation of the ROC content in grams per liter requires knowing the ink density. The density of inks shall be determined using ASTM D1475-98, Standard Test Method for Density of Paint, Varnish, Lacquer and Related Products (EPA Approved 1990).

4. Until January 1, 2012, ROC composite pressure shall be calculated using a widely accepted published source such as: Boublik, T., V. Fried and E. Hala, "The Vapor Pressure of Pure Substances," Elsevier Scientific Publishing Co., New York (1973), Perry's Chemical Engineer's Handbook, McGraw-Hill Book Company, CRC Handbook of Chemistry and Physics, Chemical Rubber Publishing Company (1986-87), and Lange's Handbook of Chemistry, John A. Dean, editor, McGraw-Hill Book Company (1985). The true vapor pressure of a component in a solvent mix may be determined by ASTM Method D2879-97, Standard Test Method for Vapor Pressure-Temperature Relationship and Initial Decomposition Temperature of Liquids by Isoteniscope. The ROC composite pressure of a solvent mix consisting entirely of ROC may be determined by ASTM Method D2879-97.

5. The capture and control efficiency of air pollution control equipment shall be determined as specified in U.S.EPA's "Guidelines for Determining Capture Efficiency," January 9, 1995, and 40 CFR 51, Appendix M, Methods 204-204F as applicable. Destruction efficiency, measured and calculated as carbon, shall be determined by 40 CFR 60, Appendix A-6, Method 18, or Appendix A-7, Methods 25, or 25A or by ARB Method 422.

6. The ROC content of any cyanoacrylate adhesive shall be determined using SCAQMD Test Method 316B Revised August 1997: "Determination of Volatile Organic Compounds (VOC) in Adhesives Containing Cyanoacrylates (EPA Approved August 1997).

7. The alcohol content of any fountain solution shall be determined using SCAQMD Test Method 313-91, Revised February 1997, "Determination of Volatile Organic Compounds (VOC) by Gas Chromatography/Mass Spectrometry (GC/MS) (EPA Approved June 1993).

8. When more than one test method or set of test methods are specified for any testing, noncompliance with any requirement of this rule established by any one of the specified test methods or set of test methods shall constitute a violation of this rule.

F. Violations

Failure to comply with any provision of this rule, including recordkeeping requirements, shall constitute a violation of this rule.

G. Definitions

1. "Adhesive": A material that is applied for the primary purpose of bonding two surfaces together by surface attachment. Adhesive used in a graphic arts operation such as in the binding or laminating of magazines, books, or other printed materials.

2. "Aerosol Coating Product": Any pressurized coating product containing pigments or resins that dispenses product ingredients by means of a propellant, and is packaged in a disposable can for hand-held application.

3. "Alcohol": An organic chemical known as a monohydric alcohol, in which one hydroxyl (OH) group is attached to a carbon atom in place of a hydrogen atom. Common examples include, are not limited to, methanol, ethanol, isopropyl alcohol, and pentanol.

4. "Blanket": Any rubber or synthetic rubber mat used in offset-lithography to transfer or "offset" an image from a planographic printing plate to paper or other substrate.

5. “Blanket Repair Material”: The material used in offset printing to correct low spots in the press blanket.

6. "Blanket Wash": Solvent used to clean the rubber-surface fabric used to transfer the image from the plate to the substrate.

7. "Blower": A unit, mounted on a web printing press, that sets and dries nonheatset ink by using unheated ambient air to accelerate the oxidation of the solvent components.

8. “Circuitry Printing”: Printing on circuit boards, membrane switches, or other electronic circuitry.

9. “Clean Air Solvent”: A solvent certified by the South Coast Air Quality Management District as a Clean Air Solvent as defined by SCAQMD Rule 102.

10 "Coating": A layer of material applied to a substrate in a relatively unbroken film to perform a protective or decorative function.

11. “Combined Efficiency”: The efficiency of an approved emission control system, measured by the collection system’s capture efficiency multiplied by the destruction or control efficiency of the control device, expressed as a percentage.

12. “Digital Printing Operations”: Operations using a digital printer that uses digital data to control the deposition of ink, toner or dye to create images. Digital print operations include, but are not limited to, the following technologies: inkjet, thermography, electrophotography, and magnetography.

13. "Exempt Organic Compounds": Shall be as defined in Rule 2 of these rules.

14. "Flexographic Printing": A printing method that uses a raised image carrier on a flexible printing roll to apply words, designs, or pictures onto a substrate. The roll is typically made of rubber or other elastomeric materials. The portion of the roll that is not raised is often referred to as the non-image area. Ink may be metered to the substrate by means of an anilox roll, which is usually constructed of a steel or aluminum core which is coated by an industrial ceramic whose surface contains millions of very fine dimples, known as cells.

15. "Fountain Solution": The solution applied to the image plate to maintain the hydrophilic properties of the nonimage areas and to keep the nonimage area free from ink. Fountain solution is primarily water and contains at least one of the following materials: etchants such as mineral salts, hydrophilic gums; or ROC additives to reduce the surface tension of the water.

16. "Fugitive Emissions": Uncollected emissions of VOC from any portion of the printing, coating or laminating operation.

17. "Grams of ROC per Liter of Coating (Ink or Adhesive), Less Water and Exempt Compounds": The weight of ROC per combined volume of ROC and coating (ink or adhesive) solids as follows:

Grams of ROC per Liter of Coating (Ink or Adhesive), Less Water and Less Exempt Compounds = $\frac{W_S - W_W - W_{es}}{V_m - V_w - V_{es}}$

Where:
W_S = weight of volatile compounds in grams
W_W = weight of water in grams
W_{es} = weight of exempt compounds in grams
V_m = volume of material in liters
V_w = volume of water in liters
V_{es} = volume of exempt compounds in liters

18. "Grams of ROC per Liter of Material": The weight of ROC per volume of material as follows:

Grams of ROC per liter of material = $\frac{W_S - W_W - W_{es}}{V_m}$

Where:
W_S = Weight of volatile compounds in grams
W_W = Weight of water in grams
W_{es} = Weight of exempt compounds in grams
V_m = Volume of material in liters

19. "Graphic Arts": All screen, gravure, letterpress, flexographic, ink jet, and lithographic printing processes or related coating or laminating processes.

20. "Graphic Arts Operation": Any packaging gravure, publication gravure, flexographic printing, screen printing, letterpress, ink jet, digital printing, or lithographic printing operation, or any associated cleaning, coating or laminating or adhesive operation to produce a printed product. These operations include printing application equipment, coating equipment, laminating equipment, flash-off areas, ovens, conveyors or other equipment in an uninterrupted series with such operation.

21. "Gravure Printing": An intaglio printing method in which the ink is transferred from minute etched wells on a plate to the substrate, which is supported by an impression roller, with excess ink removed by a doctor blade.

22. "Heater or Dryer": A device used to vaporize heatset inks.

23. "Heatset Ink": A printing ink used on continuous web-feed printing presses that are equipped with dryers or ovens. The ink dries or sets by heat-induced evaporation of the ink oils and subsequent chilling of the ink by chill rolls.

24. “Ink”: A pigmented and/or dyed liquid or paste used especially for printing or other graphic arts operations.

25. "Ink Jet Printing": Printing methods where the liquid ink is transferred at high velocity through a small diameter opening(s) to a solid substrate. Ink jet systems include, but are not limited to: Air-brush; Thermal-jet; Drop-on-demand using piezoelectric crystals; and Continuous with ink recycling.

26. "Lamination": A process of bonding two or more layers of material to form a single, multiple-layer sheet by using adhesive.

27. "Letterpress Printing": A printing method in which the image area is raised relative to the nonimage area and the ink is transferred to the paper directly from the image surface.

28. "Lithographic Printing": Printing by a planographic method in which the image and non-image areas are on the same plane and are chemically differentiated. This printing process differs from other printing processes where the image is typically printed from a raised or recessed surface.

29. "Low-Solids Inks, Coatings or Adhesives": Any product that contains 120 grams or less of solids per liter (1 pound or less of solids per gallon) of material.

30. "Maintenance Cleaning": A solvent cleaning operation or activity carried out to keep general work areas, tools, machinery or equipment excluding application equipment, in clean and good operational condition.

31. "Metering Roller": A roller used to meter the fountain solution to the printing plate in a continuous contacting dampening system on a lithographic printing press.

32. "Nonheatset Ink": Printing ink that sets and dries by absorption into the substrate, and hardens by ambient air oxidation that may be accelerated by the use of infrared, ultraviolet, or electron-beam radiation but does not involve the use of heat from dryers or ovens.

33. "Nonporous Substrate": A substrate whose surface prevents penetration by water, including but not limited to foil, polyethylene, polypropylene, cellophane, metalized polyester, nylon, or mylar. Any paper-like substrate, including cardboard or paperboard, that is coated with a nonporous material shall be considered a nonporous substrate.

34. “Offset Lithographic Printing”: A planographic method in which the image and non-image areas are on the same plane. Typically, the ink is offset from a plate to a rubber blanket, and then from the blanket to the substrate.

35. “Other Press Parts”: Any press parts that do not come into contact with inks, adhesives, or coatings. Other press parts include, but are not limited to, pressure rollers, motors, and belts. Rollers, blankets, metering rollers, fountains, impression cylinders and plates shall not be considered as other press parts.

36. "Oven": A heating chamber which uses heat, ultraviolet (UV) radiation, or electron beam (EB) radiation to bake, cure, polymerize, or dry a surface coating.

37. "Packaging Gravure": Gravure printing on paper, paperboard, foil, film or other substrates which are to be used to produce containers or packages.

38. "Pantone Color": A printing ink created for color matching by combination of process inks.

39. "Porous Substrate": Any surface or substrate that is permeable to water including but not limited to paper, cardboard, paperboard and any paper product that is coated with a porous material.

40. “Prepress Operations”: Any operation associated with printing plate making including but not limited to, film photo processors and plate photo processors, color scanners, film cleaning, or plate developers.

41. "Printing Ink": Any fluid or viscous composition used in printing, impressing, or transferring an image onto a substrate.

42. “Printing Plates”: Printing processes such as offset lithography use printing plates to transfer an image to paper or other substrates. The plates may be made of metal, plastic, rubber, paper, and other materials. The image is put on the printing plates using photomechanical, photochemical, or laser engraving processes. The image may be positive or negative.

43. "Process Ink": The hues: yellow, magenta, and cyan, plus black used in the four-color print process.

44. “Proof Press”: A press that is used only for the sole purpose of printing a sample copy of a graphic art product to check the quality of the print, color reproduction and editorial content.

45. "Publication Gravure": Gravure printing on paper which is subsequently formed into books, magazines, catalogues, brochures, directories, newspaper supplements or other types of printed material.

46. "Radiation Curing ": The use of electronic radiation to polymerize or cure specially-formulated inks, coatings, or adhesives on a substrate. Electron Beam and ultraviolet light are radiation curing methods used in graphic arts operations.

47. "Reactive Organic Compound (ROC)": As defined in Rule 2. ROC and VOC are identical and may be used interchangeably.

48. "Remote Reservoir Cold Cleaner": A device in which solvent is pumped through a sink-like work area for cleaning parts and drains immediately, without forming a pool, through a single drain hole less than 100 square centimeters (15.5 sq. in.) in area into an enclosed container which is not accessible for soaking parts.

49. "Removable Press Component": Any part, component, or accessory of a press that is physically attached to the press and does come into contact with ink, which is removed from the press prior to being cleaned. Rollers, blankets, metering rollers, fountains, impression cylinders and plates shall not be considered as removable press components.

50. "Repair Cleaning": A solvent cleaning operation or activity carried out during a repair process.

51. "Repair process": The process of returning a damaged object or an object not operating properly to good condition.

52. ROC Composite Partial Pressure": The sum of the partial pressures of the compounds defined as ROCs. ROC composite partial pressure is calculated as follows:

$$PP_c = \frac{\sum_{i=1}^{n} \left(W_i\right)\left(VP_i\right) / \left(MW_i\right)}{\left(W_w / MW_w\right) + \sum_{e=1}^{n} \left(W_e / MW_e\right) + \sum_{i=1}^{n} \left(W_i / MW_i\right)}$$

Where:
W_i = Weight of the "i"th ROC compound, in grams
W_w = Weight of water, in grams
W_e = Weight of the "e"th exempt organic compound, in grams
MW_i = Molecular weight of the "i"th ROC compound, in g/(g-mole)
MW_w = Molecular weight of water, in g/(g-mole)
MW_e = Molecular weight of the "e"th exempt organic compound, in g/(g-mole)
PP_c = ROC composite partial pressure at 20 C, in mm Hg
VP_i = Vapor pressure of "i"th ROC compound at 20C, in mm Hg.

53. "ROC-Containing Materials": Inks, coatings, or adhesives; materials used for cleanup or of inks, coatings, or adhesives; materials used for removal of adhesives; solvent, paper and cloth, and waste containing, impregnated with, coated with, or mixed with Reactive Organic Compounds.

54. "Roller Wash": Solvent used to clean the metal ink rollers on a printing press.

55. "Screen Printing": A process where the printing ink passes through a web or a fabric to which a refined form of stencil has been applied. The stencil openings determine the form and dimensions of the imprint.

56. “Sheet-Fed Printers”: Any printer that processes single individual sheets of material one at a time instead of a continuous roll of input material.

57. “Solvent Cleaning”: The use of any solvent to remove uncured adhesives, uncured inks, uncured coatings, or contaminants from a substrate.

58. "Solvent Flushing": The use of a solvent to remove uncured adhesives, uncured inks, uncured coatings, or contaminants from the internal surfaces and passages of the equipment by flushing solvent through the equipment.

59. "Specialty Flexographic Printing": Flexographic printing on polyethylene or polypropylene food packaging, fertilizer bags, or liquid-tight food containers.

60. "Sterilization Indicating Inks": Inks that change color to indicate that sterilization has occurred. Such inks are used to monitor the sterilization of medical instruments, autoclave efficiency and the thermal processing of foods for prevention of spoilage.

61. “Substrate”: Any surface of any material that is the designated recipient of any ink, coating, or adhesive.

62. "Surface Preparation": The removal of contaminants such as dust, soil, oil, grease, etc., from a substrate prior to coating, adhesive, or ink applications.

63. "Volatile Organic Compounds (VOC)": Shall have the same meaning as Reactive Organic Compounds (ROC) as defined in Rule 2 of these Rules.

64. “Web-Fed”: An automatic system which supplies substrate from a continuous roll, or from an extrusion process.

65. "Wipe Cleaning": The method of cleaning a surface by physically rubbing it with a material or device such as a rag, paper, brush or cotton swab moistened with a solvent.