

State of California
AIR RESOURCES BOARD

Resolution 80-48

July 24, 1980

WHEREAS, the Air Resources Board (Board) and the Environmental Protection Agency have established health-based ambient air quality standards for oxidant and ozone, respectively, and these standards are frequently exceeded in several of the State's air basins, including the South Coast Air Basin; and

WHEREAS, Health and Safety Code Sections 39003, 39500, 39602, and 41500 authorize the Board to coordinate, encourage, and review efforts to attain and maintain state and national ambient air quality standards; and

WHEREAS, Health and Safety Code Sections 39600 and 39605 authorize the Board to do such acts as may be necessary to execute the powers and duties granted to and imposed upon the Board, to assist the air pollution control districts; and

WHEREAS, the suggested control measure for the control of emissions of volatile organic compounds from the graphic arts industry was drafted by the Board staff and has been approved under the Suggested Control Measure Development Process, by a technical review group consisting of representatives of EPA, ARB, and several air pollution control districts; and

WHEREAS, the California Environmental Quality Act and Board regulations require that the Board not take any action which would have adverse environmental impacts unless the Board responds to all significant environmental issues raised and takes all feasible measures to mitigate such impacts; and

WHEREAS, the Board has held a duly noticed public meeting on this matter, and has heard and considered the comments presented by representatives of the ARB, districts, affected industries, and other interested persons and agencies; and

WHEREAS the Board finds:

That emissions of volatile organic compounds (VOC) from the graphic arts industry contribute to violations of the state and national ambient air quality standards for oxidant and ozone in several of the State's air basins; and

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That VOC emissions from such sources can be reduced by up to 85 percent of the present emission rate by the means set forth in the suggested control measure; and

That such emission reductions are technologically feasible and economically reasonable; and

That there are no significant adverse effects on air quality likely to result from adoption and implementation of the suggested control measure.


NOW, THEREFORE, BE IT RESOLVED, that the Board approves the suggested control measure for the control of VOC emissions from the graphic arts industry as set forth as Attachment I to this Resolution; and

BE IT FURTHER RESOLVED, that the Executive Officer is directed to forward the suggested control measure to districts which need reductions in VOC emissions to achieve and maintain state or national ambient air quality standards, with a recommendation that these districts consider adoption of the suggested control measure or a rule of equivalent effectiveness; and

BE IT FURTHER RESOLVED, that the ARB staff will confer with representatives of the graphic arts industry to determine whether the technologies necessary to comply with the measure will be available within the time schedule provided in the control measure and will be economically feasible. If the staff finds that technically feasible and economically reasonable technologies may not be available, then staff will review the suggested control measure, propose revisions as appropriate, and urge that districts which have adopted graphic arts rules amend those consistent with any ARB action.

BE IT FURTHER RESOLVED, that the Executive Officer is directed to provide assistance to any district requesting assistance in adopting, interpreting, or implementing the suggested control measure.

I certify that the above is a true and correct copy of Resolution 80-48, as adopted by the Air Resources Board



Sally Rump, Board Secretary

Attachment I
State of California
AIR RESOURCES BOARD

July 24, 1980

SUGGESTED CONTROL MEASURE FOR THE
CONTROL OF VOLATILE ORGANIC COMPOUNDS
EMISSION FROM THE GRAPHIC ARTS INDUSTRY

- I. After July 1, 1982, any person operating a publication gravure printing line shall comply with one or more of the following requirements.
 - A. Use only low-solvent inks and coatings as specified in Section IV, or
 - B. Install and operate on the line, an approved emission control system as defined in Section V, with a control device efficiency of 95 percent on a mass basis, or 40 ppm VOC (by volume) if the control efficiency is lower than 95 percent, but in no event less than 90 percent, or
 - C. Demonstrate to the satisfaction of the Air Pollution Control Officer that the emissions from the line have been reduced by at least 85 percent, overall.

- II. After January 1, 1983, any person operating any equipment for packaging gravure, specialty gravure, wall-paper screen printing, and flexographic printing and coatings on paper and paperboard substrates, excluding detergent packages, shall comply with one or more following requirements:
 - A. Use only low-solvent inks, coatings, and adhesives as specified in Section IV, or
 - B. Install and operate on the line, an approved emission control system as defined in Section V, with a control device efficiency of at least 90 percent on a mass basis, or

- C. Demonstrate to the satisfaction of the Air Pollution Control Officer that the emissions from the line have been reduced by at least 75 percent, overall.

III. Any person operating equipment for packaging gravure, specialty gravure, wall-paper screen printing, and flexographic printing, and coating on nonporous substrates and detergent packages shall comply with one or more following requirements:

- A. After July 1, 1985, any person operating any equipment subject to this Section shall use only low-solvent inks, coatings, and adhesives, as specified in Section IV, or
- B. After January 1, 1983, any person operating any equipment subject to this Section shall install and operate on the line, an approved emission control system as defined in Section V, with a control device efficiency of at least 90 percent on a mass basis; or
- C. After January 1, 1983, demonstrate to the satisfaction of the Air Pollution Control Officer that the emissions from the line have been reduced by at least 75 percent, overall.

IV. LOW-SOLVENT INK, COATING AND ADHESIVE:

Any ink, coating, or adhesive must satisfy one of the following conditions in order to be deemed a low-solvent ink, coating, or adhesive for the purposes of this measure.

- A. The ink, coating, or adhesive as applied contains less than 300 grams of volatile organic compounds per liter, excluding water, provided that the total volatile content does not exceed that of other inks, coatings or adhesives previously used by the operator for the same or equivalent products.
- B. The volatile portion of the ink, coating, or adhesive contains no more than 25 percent volatile organic compounds on a volume basis, provided that the total volatile content does not exceed that of other inks, coatings or adhesives previously used by the operator for the same or equivalent products.

V. APPROVED EMISSION CONTROL SYSTEM

An approved emission control system is a system for reducing emissions of volatile organic compounds, consisting of collection and control devices which are approved by the Air Pollution Control Officer and which satisfy the following conditions.

- A. It includes a control device designed and operated to achieve the efficiency specified in the applicable section of this rule at all times during normal operation of the line being controlled; and
- B. It includes a collection system which vents all drying oven exhaust to the control device; and
- C. It includes a collection system which is designed and

operated for maximum collection of fugitive emissions.

VI. COMPLIANCE SCHEDULES

- A. A person subject to the requirements of Section I(A) or Section II(A) shall submit a control plan by October 15, 1980, which designates the measures and increments of progress that will be taken to achieve compliance.
- B. Any person subject to the requirements of Section I(B) and (C) or Section II(B) and (C) must meet the following increments of progress.
 - 1. Submit final plans for the emission control system and process equipment before October 15, 1980;
 - 2. Award contracts or issue purchase orders for the emission control system and process equipment before December 15, 1980;
 - 3. Initiate onsite construction or installation of the emission control and process equipment before July 1, 1981; and
 - 4. Complete onsite construction or installation of the emission control and process equipment before June 1, 1982; and
 - 5. Achieve final compliance before July 1, 1982.

- C. Except as provided in D below, any person subject to the requirements of Section III(A), shall submit a control plan by March 15, 1981, which designates the increments of progress that will be taken toward compliance. As a minimum, the control plan shall include provisions for reducing the amounts of solvent used in all inks, coatings, and adhesives applied on the line*, in accordance with following schedule:
1. By July 1, 1981: Begin production line testing of low-solvent inks, coatings or adhesives.
 2. By January 1, 1982: Reduce overall solvent use on the line, by at least 20 percent.
 3. By January 1, 1983: Reduce overall solvent use on the line by at least 40 percent
 4. By January 1, 1984: Reduce overall solvent use on the line by at least 65 percent.
 5. By July 1, 1985: Be in full compliance with the requirements of Section III(A).

* "When the Air Resources Board has endorsed a suggested control measure for the implementation of the bubble concept, the districts which have adopted a rule to control emissions from the graphic arts industry are encouraged to amend their graphic arts rules to make Sections VI(C) and VI(D) applicable to 'lines' instead of 'line'."

The allowable emissions necessary to comply with the overall percent reduction, above, shall be calculated using as a baseline, the average of the actual amount of solvent used for each line for any two years selected from the years: 1977, 1978, 1979 and 1980.

The control plan required under this section shall identify which two of the four years have been selected, and the plan shall delineate the quantity of solvent used for each line for each of the two baseline years.

Any person who fails to achieve compliance with this schedule shall comply with the requirements of Section III(B) or (C) within one year from the appropriate compliance date set forth in the above schedule of increments of progress.

- D. Any person subject to the requirements of III(A) whose annual solvent consumption is less than 100 tons per year shall submit a control plan by March 15, 1982, which designates the increments of progress toward compliance. As a minimum, the control plan shall include provisions for reducing the amounts of solvent used in all inks, coatings, and adhesives applied

on the line,* in accordance with following schedule:

1. By January 1, 1983: Reduce overall solvent use on the line, by at least 20 percent.
2. By January 1, 1984: Reduce overall solvent use on the line, by at least 40 percent.
3. By January 1, 1985: Reduce overall solvent use on the line, by at least 65 percent.
4. By July 1, 1986: Be in full compliance with the requirements of Section III(A).

The allowable emissions necessary to comply with the overall percent reduction, above, shall be calculated using as a baseline, the average of the actual amount of solvent used for each line for any two years selected from the years: 1977, 1978, 1979 and 1980. The control plan required under this section shall identify which two of the four years have been selected, and the plan shall delineate the quantity of solvent used for each line for each of the two baseline years.

* "When the Air Resources Board has endorsed a suggested control measure for the implementation of the bubble concept, the districts which have adopted a rule to control emissions from the graphic arts industry are encouraged to amend their graphic arts rules to make Sections VI(C) and VI(D) applicable to 'lines' instead of 'line'."

Any person who fails to achieve compliance with this schedule shall comply with requirements of Section III(B) or (C) within one year from the appropriate compliance date set forth in the above schedule of increments of progress.

- E. Any person subject to the requirements of Section III(B) or (C) must meet the following increments of progress:
1. Submit final plans for the emission control system and process equipment before March 15, 1981;
 2. Award contracts or issue purchase orders for the emission control system and process equipment before July 15, 1981;
 3. Initiate onsite construction or installation of the emission control and process equipment before December 1, 1981;
 4. Complete onsite construction or installation of the emission control and process equipment before December 1, 1982; and
 5. Achieve final compliance before January 1, 1983.

VII. EXEMPTION

- A. This Rule shall not apply to any printing, coating, or laminating facility which emits less than 15 tons per year of volatile organic compounds.

VIII. DEFINITIONS

Coating: the application of a uniform layer of material across the entire width of a substrate. Those machines which have both coating and printing units should be considered as performing a printing operation.

Control device: equipment such as an incinerator or adsorber used to prevent air pollutants from reaching the ambient air.

Converting Operation: coating, waxing, laminating, extrusion coating and printing, for fabrication of base materials. The base materials are then used to produce wraps, bags, and other preformed packages.

Doctor blade: a steel blade used to scrape excess ink from a printing plate.

Drying Oven: an oven used to hasten the process of drying printed or coated material.

Flexible packaging industry: establishments that convert materials consisting of light gauge papers, plastic films, cellulosic films such as cellophane, thin gauge metal sheets such as aluminum foil or steel foil, and combinations thereof into a variety of product packages.

Flexographic printing: the application of words, designs, or pictures to a substrate by means of a roll printing technique in which the pattern is applied to an image carrier made of rubber or other elastomeric materials. As compared to gravure (intaglio) printing, the image to be printed via flexography is raised above the printing surface while in the gravure process the image to be printing is sunk below the surface.

Fugitive emission: emissions of volatile organic compound from any portion of the printing, coating or laminating operation other than from the drying oven.

Graphic arts industry: for this control measure, the term graphic arts refers to only publication gravure, packaging gravure, web-feed wallpaper screen printing, specialty gravure, flexographic printing operations, or any coating or laminating operation that manufactures flexible packaging material for the packaging industry.

Gravure printing: an intaglio printing operation 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 from the plate by a doctor blade.

Intaglio printing: printing done from a plate in which the image is sunk below (etched or engraved into) the surface.

Line: The minimum equipment which is required for the application and/or curing of inks and/or coatings on a continuous substrate, including the ink and/or coating applicators and heating oven(s) and associated ink and coating mixing equipment.

Nonporous Substrate: Any substrate other than paper or paperboard, including but not limited to foil, polyethylene, polypropylene, cellophane, metalized polyester, nylon and polyethylene terephthalate (mylar), but not including wood, metal, or ceramic materials.

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

Porous substrate: Paper or paperboard.

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

Screen printing: a process where the printing ink passes through a refined form of stencil to a web or fabric. The stencil openings determine the form and dimension of the imprint.

Specialty gravure printing: printing that uses the gravure process for production of wall and floor covering, decorated household paper products such as towels and tissues, cigarette filter tips, vinyl upholstery, woodgrains, and a wide variety of other products.

Web: a continuous sheet of substrate.

Web-feed: an automatic system which supplies substrates from a web.

State of California
AIR RESOURCES BOARD

Response to Significant Environmental Issues

Item: Public Meeting to Consider A Suggested Control Measure For the
Control of Volatile Organic Compound Emissions From the Graphic
Arts Industry

Public Hearing Date: July 24, 1980

Response Date: July 24, 1980

Issuing Authority: Air Resources Board

Comment: None

Response: N/A

CERTIFIED:

Sally Rump
BOARD SECRETARY

Date:

9/15/80

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Office of the Secretary

SEP 19 1980

Resources Agency of California

Memorandum

To : Huey D. Johnson
Secretary
Resources Agency

Date : August 17, 1980

Subject: Filing of Notice
of Decision of the
Air Resources Board

From : **Air Resources Board**

Pursuant to Title 17, Section 60007(b), and in compliance with Air Resources Board certification under section 21080.5 of the Public Resources Code, the Air Resources Board hereby forwards for posting the attached notice of decision and response to environmental comments raised during the comment period.


Sally Rump
BOARD SECRETARY

Attach: Resolution 80-48

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