RULE 4695 BRANDY AGING AND WINE AGING OPERATIONS (Adopted September 17, 2009)

1.0 Purpose

The purpose of this rule is to limit volatile organic compound (VOC) emissions from brandy aging and wine aging operations.

2.0 Applicability

This rule shall apply to brandy aging and wine aging operations.

3.0 Definitions

3.1 Aging: for the purpose of this rule, to keep, in a non-temporary or transient manner, brandy or wine in containers with the objective of acquiring desirable characteristics from contact with wood.

3.2 Air Pollution Control Officer (APCO): as defined in Rule 1020 (Definitions).

3.3 Air Resources Board (ARB or CARB): as defined in Rule 1020 (Definitions).

3.4 Best Available Retrofit Control Technology (BARCT): as defined in the California Health and Safety Code "an emission limitation that is based on the maximum degree of reduction achievable, taking into account environmental, energy, and economic impacts by each class or category of source." BARCT requirements are generally more stringent than RACT requirements.

3.5 Brandy: an alcoholic beverage made from distilled wine or fermented fruit juice, usually 40-60% ethyl alcohol by volume.

3.6 Capture System: equipment, including but not limited to, hoods, ducts, fans, booths, and vents which are used to contain, capture, or transport an air pollutant to an emissions control device.

3.7 Combined Capture and Control Efficiency (CCCE): the total percent reduction in emissions, achieved by an emissions control system.

3.8 Control Device: equipment that is used to reduce the amount of air pollutants in an exhaust stream before discharge to the ambient air.

3.9 Emission Control System: a system consisting of a capture system and control device.

3.10 Environmental Protection Agency (EPA): the United States Environmental Protection Agency.

3.11 Fan Inlet Pressure Control Point: the pressure monitor point for controlling the induced draft fan for purposes of maintaining negative pressure on the warehouse adequate to ensure the warehouse meets the criteria of a Permanent Total Enclosure (PTE) pursuant to EPA Method 204: Criteria for and Verification of a Permanent or Temporary Total Enclosure.

3.12 Gas Leak: a reading in excess of 1,000 ppmv, above background, measured on a portable hydrocarbon detection instrument that is calibrated with methane.

3.13 Gas-Tight: a condition without a gas leak as determined by EPA Method 21 in accordance with EPA Method 21.

3.14 Inventory: the stock of an item on hand at a particular location or business.

3.15 Maximum Allowable Negative Gauge Pressure: the maximum value of negative gauge pressure as measured at the Fan Inlet Pressure Control Point which ensures that the warehouse operates with sufficient negative gauge pressure to meet the criteria for a PTE pursuant to EPA Method 204: Criteria for and Verification of a Permanent or Temporary Total Enclosure.

3.16 Must: as defined in Rule 4694. any unfermented juice or mixture of juice, pulp, skins, and seeds prepared from grapes or other fruit. Must fermented to produce white wines is considered to be juice. Must fermented to produce red wines is considered to be a mixture of juice and solids, such as pulp, skins, and seeds. The solid portion of the must is called pomace.

3.17 Natural Draft Opening (NDO): as defined in EPA Method 204. Any permanent opening in the enclosure that remains open during operation of the facility and is not connected to a duct in which a fan is installed.

3.18 Non-Personnel Access Door: openings which are required to allow routine movement of brandy or wine into and out of the warehouse for access with wheeled and motorized maintenance equipment.

3.19 Normal Operation: the period during which a warehouse is operating while meeting the minimum requirements for a permanent total enclosure pursuant to EPA Method 204 and while the VOC emission control system is fully operational.

3.20 Operational and Maintenance Functions: operational and maintenance functions include the transport of barrels into and out of the warehouse, repair of warehouse internal equipment or any other operational or maintenance reason for opening the non-personnel access doors (primarily for forklift or other equipment access) during which time the enclosure would not qualify as a PTE.

3.21 Permanent Total Enclosure (PTE): an enclosure, as defined in EPA Method 204, which is a permanently installed and completely surrounds a source of emissions such that all VOC emissions are captured and contained for discharge to a control device.

3.22 Personnel Access Door: a door, with a maximum opening of 21 square feet, intended solely for occasional personnel access to the warehouse for maintenance or monitoring activities.

3.23 Potential To Emit: as defined in Rule 2201 (New and Modified Stationary Source Review Rule).

3.24 Proof Gallons: one liquid gallon of proof spirits, which contains 1/2 of its volume as ethanol, measured at 60 degrees Fahrenheit.

3.25 Reasonable Available Control Technology (RACT): for existing sources, those emission limits that would result from the application of demonstrated technology to reduce emissions.

3.26 Stationary Source: as defined in Rule 2201 (New and Modified Stationary Source Review Rule).

3.27 Shutdown: termination of operations.

3.28 Total Annual Aging Inventory (TAAI): average of calendar year inventory. Brandy aging and aging wine inventories are calculated separately, based on TTB Form 5110.11 for brandy and Form 5120.17 for wine. The calculation is as follows:

$$TAAI = \sum MI \div 12 \text{ months/year.}$$

where:

TAAI = Total Annual Aging Inventory in gallons per year.
MI = Monthly Inventory in gallons.

3.29 Volatile Organic Compound (VOC): as defined in Rule 1020 (Definitions).

3.30 Warehouse: for the purposes of this rule, the building, enclosure, or other area in which containers holding brandy and/or wine are kept for aging.

3.31 Wine: as defined in Rule 4694, the liquid product obtained from fermented must.

4.0 Exemptions

4.1 Except for recordkeeping requirements of Section 6.1.3, this rule shall not apply to any Stationary Source with a Potential To Emit of less than 10 tons of VOC per year.

4.2 This rule shall not apply to wine storage tanks subject to Rule 4694 (Wine Fermentation and Storage Tanks), Section 5.2.

5.0 Requirements

5.1 For a Stationary Source with a brandy or wine aging operation, operators shall implement record keeping according to Section 6.1, and shall implement each of the following RACT work practices:

5.1.1 Prevent and minimize the unnecessary occurrence of brandy or wine exposure to the atmosphere.

5.1.2 Prevent and minimize the occurrence of leaks and spills of brandy or wine.

5.1.3 Implement immediate clean up of leaks and spills of brandy or wine by rinsing the leaks or spills with water and washing the rinse into a proper drain.

5.1.4 Implement corrective actions to prevent a reoccurrence of a similar brandy or wine leak or spill.

5.2 For a Stationary Source with a wine aging operation that equals or exceeds both the applicable inventory and the emission thresholds listed in Table 1, operators shall also comply with the RACT work practices in either Section 5.2.1 or 5.2.2, or the requirements of Section 5.8.

5.2.1 Maintain the wine aging warehouse such that the daily average temperature, averaged over a calendar year, does not exceed 70 degrees Fahrenheit, or

5.2.2 Implement a control technology to reduce the Uncontrolled Aging Emissions (UAE), as calculated using the equation in Section 5.4 and the

Aging Emission Factor (AEF) of 0.02783 pounds ethanol per gallon, by at least 50%.

5.3 For a Stationary Source with a brandy aging operation that equals or exceeds both the applicable inventory and emission thresholds listed in Table 1, the operator shall implement BARCT by complying with Section 5.1 and either Section 5.3.1 or 5.3.2.

5.3.1 Comply with all of the requirements of Section 5.5 through 5.7, inclusive, or

5.3.2 Implement an alternate control measure that is demonstrated, using production data or the Test Methods of Section 6.2, to produce a brandy UAE of less than or equal to 0.3 proof gallons per 50 gallons, as calculated using the equation in Section 5.4, and as approved by the APCO.

Table 1. Brandy aging and wine aging thresholds

Product Type	Total Annual Aging Inventory (gallons per year)	Uncontrolled Aging Emissions (lbs/yr)
Brandy	40,000	8,000
Wine	590,000	16,000

5.4 Uncontrolled Aging Emission (UAE) threshold determinations shall be calculated using the following formula:

$$UAE = TAAI * AEF$$

Where:

UAE = Uncontrolled Aging Emissions (ethanol), in pounds per year.
TAAI = Total Annual Aging Inventory, in gallons per year.
AEF = Aging Emission Factor, in pounds ethanol per gallon.
Brandy default AEF = 0.1986 pounds ethanol per gallon, calculated from the default value of 3 proof gallons per 50 gallons barrel loss by volume, unless the actual loss by volume is demonstrated to be less.
Wine default AEF = 0.02783 pounds ethanol per gallon, calculated from the default value of 3%, unless the actual loss by volume is demonstrated to be less.

5.5 Operators complying with Section 5.3.1 shall conduct all brandy aging operations in a warehouse that is certified and maintained as a Permanent Total Enclosure (PTE) pursuant to EPA Method 204: Criteria for and Verification of a Permanent or Temporary Total Enclosure. The warehouse shall be certified as a PTE within 90 days of initial startup by a District-approved independent certifying entity (Air Resources Board Independent Contractors Approved under the California Code of Regulations, Title 17, Section 91207.)

5.5.1 Warehouses shall continuously meet the criteria for Normal Operation except for periods when the Non-Personnel Access Doors are opened for personnel and equipment access as required for Operational and Maintenance Functions and/or when the VOC control device is shutdown for scheduled routine maintenance. The total annual cumulative duration for all operational or maintenance functions and/or shutdowns shall not exceed eight (8) percent of the time during which the operations occur or a maximum of 701 hours/year which ever is less. This period shall include periods of downtime required to perform scheduled routine maintenance. Scheduled maintenance shall not exceed three (3) percent of the total operating hours per year or 240 hours per year, whichever is less.

5.5.2 A Maximum Allowable Negative Gauge Pressure at the Fan Inlet Pressure Control Point, adequate to ensure maintenance of a continuous negative gauge pressure in the warehouse as required to qualify the warehouse as a Permanent Total Enclosure pursuant to EPA Method 204, shall be demonstrated, established, and recorded at startup. The Fan Inlet Pressure Control Point shall continuously operate with a negative gauge pressure equal to or exceeding this value (more negative) except for periods when the non-personnel access doors are opened for equipment access for operational or maintenance functions.

5.5.3 Each Personnel Access Door shall be equipped with an automatic closure device to minimize the time that the door is open. Personnel access doors shall be opened only as required for access to or exit from the enclosure, minimizing the duration of the opening, and shall not be propped open.

5.5.4 Each Non-Personnel Access Door shall be equipped with a motor-actuated door and controls which will minimize the time the door remains open during access and exit and shall be integrated with the continuous monitoring system to record the time periods that the door is open.

5.6 Except for the periods of downtime required to perform scheduled routine maintenance, the warehouse's VOC emissions shall be continuously vented through a VOC emission control device that has been approved, in writing, by the APCO and which achieves a control efficiency of at least 98 percent, by weight, as determined pursuant to Section 6.2.3. Routine scheduled maintenance which requires shutdown of the VOC emission control device shall not be performed during the months of July, August, or September.

5.7 Monitoring

5.7.1 The operator of any brandy aging operation shall have the operation equipped with a continuous, automatic, monitoring system which monitors the pressure at the Fan Inlet Pressure Control Point, monitors critical operation parameters of the control device, such as the combustion chamber temperature, and records the time of opening for all non-personnel access doors.

5.7.2 Each month the operator shall demonstrate that operation of the warehouse with the Maximum Allowable Negative Gauge Pressure at the Fan Inlet Pressure Control Point is adequate to maintain the qualification of the warehouse as a PTE pursuant to EPA Method 204 by manually measuring and recording facial velocity at the largest Natural Draft Opening (NDO) on the warehouse and confirming a minimum facial velocity of 200 feet per minute. After 12 consecutive months of demonstrating the adequacy of the established Maximum Allowable Negative Gauge Pressure, the monitoring frequency can be reduced to once per calendar quarter.

5.8. Operators, who conduct wine aging in a non-porous tank as allowed under Section 5.2, shall comply with all of the following requirements:

5.8.1 The tank shall be equipped and operated with a pressure-vacuum relief valve meeting all of the following requirements:

5.8.1.1 The pressure-vacuum relief valve shall operate within 10% of the maximum allowable working pressure of the tank,

5.8.1.2 The pressure-vacuum relief valve shall operate in accordance with the manufacturer's instructions,

5.8.1.3 The pressure-vacuum relief valve shall be permanently labeled with the operating pressure settings, and

5.8.1.4 The pressure-vacuum relief valve and tank shall remain in a gas-tight condition except when the operating pressure of the tank exceeds the valve set pressure. A gas-tight condition shall be determined by measuring the gas leak in accordance with the procedures in EPA Method 21.

5.8.2 The temperature of the aging wine shall be maintained at or below 75° Fahrenheit during wine aging operations.

5.8.2.1 Temperature of the aging wine shall be determined and recorded at least once per week.

5.8.2.2 For each batch of aging wine, operators shall achieve the temperature of 75°F or less within 60 days after the start of the aging process.

6.0 Administrative Requirements

6.1 Recordkeeping:

Operators of a brandy or wine aging operation shall maintain records, including, but not limited to:

6.1.1 Daily and annual records of the hours of operation indicating time, duration, and reason of all periods of outage for a VOC control system, including maintenance. Records of annual cumulative hours of Normal Operation shall be maintained.

6.1.2 All maintenance activities requiring a shutdown of a VOC control device, including the maintenance activity, time and date of shutdown of a VOC control device, and the duration of the shutdown.

6.1.3 Records of throughput and the gallons lost while aging. Annual summaries of all filling and dumping operations shall be maintained to allow annual determination of total proof gallons and gallons lost from each aging operation. All gauging shall be in accordance with the methods and procedures of the Gauging Manual of the Alcohol and Tobacco Tax and Trade Bureau, Department of the Treasury (27 CFR 30).

6.1.4 All required monitoring of Section 5.7.

6.1.5 All records shall be retained for a minimum of five years, and shall be made available for District, ARB, or EPA inspection, upon request.

6.2 Test Methods

The following test methods shall be used to determine compliance with the provisions of this rule. Alternate test methods may be used provided they are approved by the APCO, ARB, and EPA.

6.2.1 Determination of PTE: EPA Method 204: Criteria for and Verification of a Permanent Total Enclosure as specified in 40 CFR 51, Appendix M.

6.2.2 VOC emissions for source test purposes shall be determined using EPA Method 25 or Method 18 or BAAQMD ST-32, except when the outlet concentration must be below 50 ppmv in order to meet the standard, in which case EPA Method 25A may be used.

6.2.3 Determination of Control Efficiency of VOC Emission Control Systems shall be made using the following methods:

6.2.3.1 The control efficiency of a VOC emission control system's VOC control device shall be determined using EPA Methods 2, 2A, or 2D for measuring flow rates and EPA Methods 25, 25A, or 25B, EPA Method 18, or BAAQMD ST-32, as applicable, for measuring total gaseous organic concentrations at the inlet and outlet of the control device.

6.2.3.2 Control Device Efficiency, in percent, is the ratio of the weight of VOC removed by the control device from the effluent stream entering the control device to the weight of VOC in the effluent stream entering the control device, both measured simultaneously, shall be calculated by the following equation:

$$\text{Control Device Efficiency } (\%) = [(Wc-Wa) \div Wc] \times 100$$

Where:

Wc = weight of VOC entering the control device
Wa = weight of VOC discharged from the control device

6.3 Compliance Testing

6.3.1 Source testing shall be conducted using the methods and procedures specified in Section 6.2. The District must be notified at least 30 days prior to any compliance source test, and a source test plan must be submitted for approval at least 15 days prior to testing.

6.3.2 The results of each source test shall be submitted to the District within 60 days after the date the source testing is completed.

6.3.3 Emission control systems shall be initially source tested for compliance with the applicable requirements of this rule no later than January 1, 2012, and not less than once every five (5) years, thereafter.

6.3.4 VOC emissions during the source test shall be calculated as the arithmetic average of three 30-consecutive-minute test runs.

7.0 Compliance Schedule

On and after January 1, 2012, no person shall conduct a brandy or wine aging operation unless compliance with the applicable requirements of this rule is demonstrated.