

7 DE Admin Code 1124 “Control of Volatile Organic Compound Emissions”

45.0 Industrial Cleaning Solvents.

3/11/2011

45.1 Applicability.

45.1.1 The provisions of 45.0 of this regulation apply to all sources that use organic solvents for the purpose of cleaning. The provisions of 45.3, 45.4, and 45.5 of this regulation do not apply to the following sources:

45.1.1.1 Any source that is covered under 33.0, Solvent Metal Cleaning, of this regulation.

45.1.1.2 Any non-manufacturing area cleaning operation.

45.1.1.3 Any non-routine maintenance of manufacturing facilities and equipment.

45.1.1.4 Any source that uses less than 4,540 kilograms (five tons) of cleaning solvent per year from all cleaning activities at the facility.

45.1.2 Any facility that becomes or is currently subject to the provisions of 45.0 of this regulation by exceeding the applicability threshold in 45.1.1.4 of this regulation shall remain subject to these provisions even if its emissions later fall below the applicability threshold.

45.1.3 Any facility that is currently subject to a state or federal rule promulgated pursuant to the Clean Air Act Amendments of 1977 by exceeding an applicability threshold is and shall remain subject to these provisions, even if its throughput or emissions later fall below the applicability threshold.

45.1.4 Existing sources shall comply with this regulation upon promulgation. New, reconstructed, or modified sources shall comply with the requirements of this regulation beginning fifteen months after startup and shall follow the time schedule for the solvent usage study, screening tests, and trial evaluations as specified in 45.0 of this regulation.

45.2 Definitions. As used in 45.0 of this regulation, all terms not defined herein shall have the meaning given them in the November 15, 1990 Clean Air Act Amendments (CAAA), or in 2.0 this regulation.

“Cleaning activity” means the physical removal of foreign material from substrate that is being cleaned.

“Cleaning of external surface” means the act of applying a solvent to an external surface for cleaning. The cleaning activities may include, but are not limited to, wiping and spraying. Unit operation systems in this category include, but are not limited to, floor cleaning, equipment cleaning, large manufactured component cleaning, small manufactured component cleaning, and spray-booth cleaning.

“Cleaning of internal surface” means the act of applying a solvent to an interior surface for cleaning. The cleaning activities may include, but are not limited to, flushing, purging, and spraying. Unit operation systems in this category include, but are not limited to, line cleaning, tank cleaning, spray-gun cleaning, and spray-booth cleaning.

“Dipping” means immersing an item in a container of solvent to remove contaminants or residue.

“Equipment, facility, and procedural change” means the use of alternative cleaning techniques and procedures, such as the use of high-pressure water equipment to reduce solvent stripping, floor scrubbers, removable or replaceable equipment covers, improved containment of volatile organic compounds (VOCs) from materials in storage/transfer/use, improved reclaim/reuse/recycle procedures, etc.

“Flushing” means pumping a solvent from a reservoir through a pipe or hose or through equipment (e.g., pipes, hoses, tanks) to remove contaminants or residue.

“Material change” means the use of caustic cleaners, cleaners with a low VOC content or low vapor pressure, peelable-type equipment/structure coatings, etc.

“Non-manufacturing area cleaning” means the cleaning of cafeterias, laboratories, pilot facilities, restrooms, office buildings, etc.

“Parts cleaning” means the spraying or wiping of solvent on a part or the dipping of a part in solvent for cleaning. Unit operation systems in this category include, but are not limited to, small manufactured component cleaning, tool cleaning, and maintenance equipment cleaning.

“Purging” means the cleaning of the interior of a spray gun and other attached equipment (e.g., hoses, paint cups) cleaned simultaneously with the spray gun.

“Spraying” means the application of a cleaning solvent to a surface through a nozzle.

“Unit operation system (UOS)” means the ensemble of equipment around which a material balance is performed. A UOS includes all possible points/sources that could result in losses to the atmosphere as a result of its being cleaned, including losses during dispensing of solvent, losses from residual solvent on or in cleaning tools (such as rags), losses from solvent storage, etc. An item of equipment used for cleaning parts by definition is a unit operation; therefore, carry-out losses during removal of cleaned parts shall be considered in a material balance. A UOS may include more than one cleaning activity that, by itself, could be classified as a UOS.

45.3 Standards.

45.3.1 Solvent Usage Study. An owner or operator of a source that uses organic solvents for the purpose of cleaning shall conduct a Solvent Usage Study in accordance with the following procedures:

45.3.1.1 Each type of cleaning operation involving the use of an organic solvent shall be categorized as one or more of the following operations:

45.3.1.1.1 Cleaning of internal surfaces.

45.3.1.1.2 Cleaning of external surfaces.

45.3.1.1.3 Parts cleaning.

45.3.1.2 Each type of cleaning operation involving the use of an organic solvent shall be defined as a UOS that has a theoretical system boundary such that all solvent inputs, outputs, and evaporative losses may be calculated using a simple mass balance equation. The owner or operator shall submit the following information for each UOS as part of the Solvent Usage Study:

45.3.1.2.1 Engineering drawings or sketches of all UOSs. The drawings or sketches shall indicate a system boundary, solvent input or inputs, solvent output or outputs, and solvent evaporative loss points.

45.3.1.2.2 One mass balance equation, or equivalent, per UOS. Each equation shall have variables sufficient for calculating total VOC emissions from the UOS.

45.3.1.2.3 A quantification of total VOC emissions from each UOS.

45.3.1.2.4 Any relevant assumptions or approximations made in defining each UOS.

45.3.1.3 The Solvent Usage Study shall be completed and submitted to the Department within three months of the promulgation of 45.0 of this regulation.

45.3.2 Screening Tests. An owner or operator of a source that uses organic solvents for the purpose of cleaning shall conduct Screening Tests to evaluate the performance of alternative (aqueous or lower VOC) cleaning solutions in accordance with the following procedures:

45.3.2.1 Screening Tests shall evaluate alternative cleaning solutions as possible substitutes for the current solvents used in the three cleaning operations, or UOSs, identified as the largest sources (or the number identified, if less than three) of uncontrolled VOC emissions by the Solvent Usage Study described in 45.3.1 of this regulation.

45.3.2.2 Screening Tests shall be performed using one, or a combination of, the test methods presented in 45.4 of this regulation. A Screening Test Plan shall be submitted to the Department for review within six months of the promulgation of 45.0 of this regulation. The Department will accept, modify, or reject the Screening Test Plan within 90 days of receiving the plan. The Department may refuse to accept any testing for which it has not had an opportunity to review the test protocol or to observe the test.

45.3.2.3 Once an owner or operator has a Screening Test Plan that has been accepted by the Department, Screening Tests shall be conducted. The results of such Screening Tests shall be submitted to the Department for review within twelve months of the promulgation of 45.0 of this regulation. The Department will accept or reject the Screening Tests results within 90 days of receiving the results. The Department may accept the results of tests conducted after January 1, 1990, but started prior to the adoption of 45.0 of this regulation, if review of the test methods and results show that a test protocol consistent with 45.4 of this regulation was used.

45.3.2.4 The Screening Tests results submitted to the Department shall include, at a minimum, the following information for each alternative cleaning solution examined:

45.3.2.4.1 The VOC content.

45.3.2.4.2 The results of the Screening Tests conducted using any of the methods presented in 45.4 of this regulation and accepted by the Department in an approved Screening Test Plan.

45.3.2.4.3 The results of any other relevant evaluations performed.

45.3.2.5 Identical or similar UOSs may be compared, for the purpose of screening tests and trial evaluations, by establishing with the Department such similarity and receiving Department approval, and as such shall not require separate screening tests and trial evaluations. The Department may consider the similarity of UOSs that are maintained by the owner or operator in a comparable facility or simulated pilot operation in another state.

45.3.3 Trial Evaluations. An owner or operator of a source that uses organic solvents for the purpose of cleaning shall conduct Trial Evaluations for the alternative solvents which show the greatest degree of emission reductions, considering technical and economical feasibility, based on the Screening

Tests results accepted by the Department. The Trial Evaluations shall be conducted in accordance with the following procedures:

45.3.3.1 Trial data shall compare cleaning solvent usage both before and during the Trial Evaluations.

45.3.3.2 Each test trial shall evaluate potential material and equipment, facility, and procedural changes for reducing VOC emissions from cleaning solvent usage.

45.3.3.3 Following the Trial Evaluations, an owner or operator of the source shall prepare a Summary Report on the results of the Trial Evaluations. The Summary Report shall include the following information:

45.3.3.3.1 A brief description of the steps taken under 45.3.1 through 45.3.3 of this regulation to identify cleaning solvent usage and to evaluate material and equipment, facility, and procedural changes to reduce VOC emissions.

45.3.3.3.2 The results of the Trial Evaluations. The Department may accept the results of any Trial Evaluations conducted after January 1, 1990, but started prior to the adoption to 45.0 of this regulation, if review of the test methods and results show that a test protocol consistent with 45.4 of this regulation was used.

45.3.3.3.3 A Cleaning Solvent Proposal for the adoption of those material and equipment, facility, and procedural changes demonstrated to be feasible and reasonable in reducing VOC emissions. The Summary Report shall include a proposed schedule for implementing the Cleaning Solvent Proposal as soon as practicable, but no later than November 1, 1996.

45.3.3.4 Trial Evaluations shall be completed, and the Summary Report and the Cleaning Solvent Proposal shall be submitted to the Department for review, within twenty months of the promulgation of 45.0 of this regulation, unless an owner or operator demonstrates to the Department that such timing is unreasonable.

45.3.3.5 Identical or similar UOSs may be compared, for the purpose of screening tests and trial evaluations, by establishing with the Department such similarity and receiving Department approval, and as such shall not require separate screening tests and trial evaluations. The Department may consider the similarity of UOSs that are maintained by the owner or operator in a comparable facility or simulated pilot operation in another state.

45.3.3.6 After receipt of the Summary Report and the Cleaning Solvent Proposal, the Department shall approve the report as soon as practicable, or shall notify the owner or operator of any concerns to be addressed.

45.3.3.7 After final Department approval of the Summary Report, the changes will be incorporated into the permit conditions. The owner or operator shall implement the Cleaning Solvent Proposal and the approved schedule. Implementation shall be completed no later than November 1, 1996, unless the owner or operator demonstrates to the Department that such timing is unreasonable.

45.3.3.8 An owner or operator may implement changes to its cleaning solvent proposal that have been approved and implemented under 45.3.3.6 and 45.3.3.7 of this regulation, if the change results in no increase in emissions. In such case, no notification to the Department shall be required. The change, however, shall still be subject to any preconstruction permitting and operating permit approvals that may apply.

45.4 Test Methods. Compliance with 45.3.2.4 of this regulation shall be achieved by applying any of the following test methods:

45.4.1 American Society for Testing and Materials (ASTM) Method D-4828 for determining the practical washability of organic coatings.

45.4.2 Method for determining the performance of alternative cleaning fluids found in **Appendix M** of this regulation.

45.4.3 Any site-specific evaluation test, accepted by the Department, that is designed to compare cleaning solvent usage through material or procedural changes to potentially reduce VOC emissions.

45.5 Recordkeeping. An owner or operator of a source that uses organic solvents for the purpose of cleaning shall maintain the following records in a readily accessible location for at least five years and shall make these records available to the Department upon verbal or written request:

45.5.1 Detailed records of organic solvent usage for each UOS incorporated in a permit in accordance with the requirements listed in 45.3 of this regulation.

45.5.2 Records of organic solvent usage and monthly VOC emission calculations for each UOS incorporated in a permit.

45.6 Reporting and Certification. An owner or operator of a source that uses organic solvents for the purpose of cleaning shall initially report to the Department the total quantity of solvent that it used for the calendar year prior to the promulgation date of 45.0 of this regulation. This initial report shall be submitted to the Department within three months of the promulgation of 45.0 of this regulation. Each year, the owner or operator shall submit subsequent reports to the Department by the promulgation date (month, day) of 45.0 of this regulation. The initial and subsequent reports shall include the following information:

45.6.1 The name and location of the facility.

45.6.2 The address and telephone number of the person responsible for the facility.

45.6.3 The tons of solvent used during the calendar year prior to the promulgation date of 45.0 of this regulation and a copy of the calculations that were performed to estimate the amounts.

45.6.4 A certification that the source is in compliance with 45.3, 45.4, and 45.5 of this regulation or that these paragraphs do not apply based on the exclusions of 45.1.1 of this regulation.