**Terms Last Revised: 6/01/2016**

**C1F Cold Cleaners using a Freeboard Ratio to demonstrate compliance [OAC rule 3745-21-09(O)(2)]**

**Note: Either a freeboard ratio 0.7, a water cover, a refrigerated chiller, a carbon adsorption system, or other approved equivalent control must be employed if the vapor pressure is greater than 0.6 lb/in2 absolute measured at 100 Fahrenheit or the solvent is heated above 120F**

**C.1.a Additional Terms and Conditions, Cover Requirements for Cold Cleaners****[OAC rule 3745-21-09(O)(2)(a)(i)]**

* + - * 1. The cold cleaner shall be operated with a cover; and the cover shall be designed and constructed so that it can be easily operated with one hand. The cover shall remain closed at all times, except when parts are being handled or solvent is being added or removed.

[OAC rule 3745-21-09(O)(2)(a)(i)]

**C.1.d Additional Terms and Conditions, requirements** **for Cold Cleaners using a Freeboard Ratio to demonstrate compliance [OAC rule 3745-21-09(O)(2)(c)(i)]**

**PTI / New Source**

* + - * 1. The open top vapor degreaser shall be equipped with a freeboard and a freeboard ratio greater than or equal to 0.7 shall be maintained.

[OAC rule 3745-21-09(O)(2)(c)(i)]

**PTO / Installed Source**

* + - * 1. The cold cleaner shall be maintained with a freeboard ratio equal to or greater than 0.7.

[OAC rule 3745-21-09(O)(2)(c)(i)]

**C.1.c Additional Terms and Conditions, Drainage Device requirement for Cold Cleaners** **having a vapor pressure greater than 0.6 pound per square inch absolute, at 100F** **[OAC rule 3745-21-09(O)(2)(b)]**

**PTI / New Source**

* + - * 1. The cold cleaner shall be equipped with a device for draining the cleaned parts; and the drainage device shall be constructed internally so that parts are enclosed under the cover during draining, unless an internal type drainage device cannot fit into the cleaning system.

[OAC rule 3745-21-09(O)(2)(b)]

**PTO / Installed Source**

* + - * 1. Cleaned parts shall be drained internally and shall remain enclosed under the cover of the cold cleaner until drainage has ceased as much as possible.

[OAC rule 3745-21-09(O)(2)(b)]

**C.1.f Operational Restrictions, Required operational practices for all Cold Cleaners** **[OAC rule 3745-21-09(O)(2)(d)]**

* + - 1. The cold cleaner shall be operated and maintained in accordance with the following practices to minimize solvent evaporation from the unit:
         1. A permanent, legible, conspicuous label, summarizing the operating requirements shall be maintained near or attached to the cold cleaner.
         2. Waste solvent shall be stored in covered containers.
         3. The cover shall remain closed whenever parts are not being handled in the cleaner.
         4. Cleaned parts shall drain until dripping ceases.
         5. If used, a solvent spray that is a solid fluid stream (not a fine, atomized, or shower-type spray) shall be supplied at a pressure that does not exceed 10 pounds per square inch gauge.
         6. Porous and/or absorbent materials shall not be cleaned in the cold cleaner.

[OAC rule 3745-21-09(O)(2)(d)]

**C.1.v Record keeping Requirements for Cold Cleaners****using a Freeboard Ratio for control [OAC rule 3745-21-09(O)(5)(a) and (c)]**

**Note:** **These records are not all required per the rule, however they would be needed in order to demonstrate compliance with the rule.**

* + - 1. The permittee shall maintain records of the following information:
         1. the types of solvents employed in the cold cleaner, including the chemical name(s) and concentration;
         2. the vapor pressure of each solvent applied, in pound per square inch absolute, measured at 100degrees Fahrenheit;
         3. the maximum temperature at which the solvent is maintained;
         4. record of the freeboard ratio before and after each addition of make-up solvent and the date of the solvent addition; and
         5. a record of the date and nature of any other maintenance activities for the freeboard ratio control.

The records for the types of solvents employed during each year and the vapor pressure of each solvent at 100degrees Fahrenheit shall be maintained for at least 5 years and shall be made available to the Director or his representative upon verbal or written request.

[OAC rule 3745-21-09(O)(5)(a) and (c)]

**C.1.h Record keeping Requirements for Cold Cleaners where there is a TPY limit**

* + - 1. The permittee shall maintain records of the following information, collected at the end of each year:
         1. the total cleaning solvent added to the cold cleaner or the amount purchased for use in the emissions unit during the year;
         2. the total amount of solvent collected for disposal and/or recovery and shipped off-site during the year; and
         3. the estimated annual VOC emissions from this emissions unit, calculated using the difference between the solvent used or purchased and the used solvent shipped offsite, adjusting the units to calculate the emissions in tons/year.

**C.1.j Reporting Requirements for Cold Cleaners using Freeboard Ratio for compliance** **[OAC rule 3745-21-09(O)(2)(c)(i)]**

**Note:** **There are no reporting requirements in this OAC rule, however, the following term requires reporting of non-compliance with the requirement to maintain the appropriate freeboard ratio.**

* + - 1. The permittee shall submit quarterly reports documenting any period of time during which a solvent with a vapor pressure greater than 0.6 lb/in2 absolute measured at 100F was used or the solvent was heated above 120F, without also maintaining the freeboard ratio equal to or greater than 0.7; and any period of time during which the cold cleaner was not operated and maintained and/or its solvents handled in accordance with the requirements of this permit.

[OAC rule 3745-21-09(O)(2)(c)(i)]

**C.4 Testing Requirements for all Solvent Metal Cleaning, to determine a VOC emission rate or emission factor to be used to demonstrate compliance with any short-term VOC limitation contained in a permit [OAC rule 3745-21-10(D)]**

* + - 1. The permittee shall quantify VOC emissions through a material balance test, conducted for a sufficient period of time to compute an average emission rate. The following procedures shall be implemented in order to perform this material balance test and document the average VOC emissions from this emissions unit, as follows:
         1. the degreaser tank shall be cleaned before testing begins;
         2. records shall be maintained of the weight or volume of solvent used to initially fill the cleaning tank and the volume or weight of the make-up solvent added to the tank during the test period;
         3. at the end of the test period (which can coincide with the normal solvent replacement cycle) the used solvent shall be pumped or drained out of the tank and the volume or weight measured using the same method applied in “b” above;
         4. a record shall be maintained of the time (hours) passing between filling the tank with fresh solvent (start of test period) to the removal of the waste solvent, as well as, the number of parts or weight of the work load cleaned during the test period;
         5. a sample of the used solvent shall be analyzed for the percent oil, metal chips, and other contaminants (the oil and solvent proportions can be estimated by weighing samples of used solvent before and after boiling off the solvent);
         6. from the analysis of the used/waste solvent in “e”, the volume or weight of oils, dissolved from the cleaned parts or work load, shall be documented;
         7. the total VOC emissions from the cleaning tank during the test period shall be calculated\* from the volume or weight of solvent displaced by the oil, plus the total makeup solvent added to the tank to the same initial fill line, and this volume or weight multiplied by the solvent density (pounds per gallon) or VOC concentration (weight percent) of the solvent; or
         8. if the final solvent line is below the initial solvent line in the tank when the waste solvent is pumped or drained out, the total VOC emissions from the cleaning tank during the test period shall equal the measured volume or weight of fresh solvent used to initially fill the tank, minus the total volume or weight of used solvent pumped/drained out, plus the volume or weight of solvent displaced by the oil (calculated in “e” above), plus the volume or weight of makeup solvent added to the tank during the test period, and this total volume or weight multiplied by the solvent density (pounds per gallon) or VOC concentration (weight percent) of the degreasing solvent; or
         9. as an alternative to the procedures for estimating VOC emission from the cleaning tank in “g” or “h” above, the VOC emissions may be calculated as the difference between the total volume of solvent added to the cleaning tank during the test period (the amount used to initially fill the tank and the makeup solvent added) and (minus) the solvent contained in the used solvent pumped or drained out; and this difference in volume or weight multiplied by the solvent density (pounds per gallon) or VOC concentration (weight percent) of the degreasing solvent;
         10. the average VOC emissions rate shall be calculated by dividing the total emissions calculated in “g”, “h”, or “I” by the total hours of the test period (and/or divided by the total parts cleaned during the test period if an emissions per production rate is required) as recorded in “d”; and
         11. if waste solvents pumped from the solvent cleaning tank are not immediately sealed to prevent evaporation and if a record is not maintained of the volume or amount sent offsite for recovery and/or disposal, such waste solvent losses shall be included with those calculated above in any required emissions report(s) if it cannot be demonstrated that this volume of material has been properly recovered or disposed of and/or has not been lost through evaporation to the atmosphere.

\* If solvent measurements are recorded by volume the density of the solvent shall be used to convert gallons to pounds.

[OAC rule 3745-21-10(D)]

(C1F: current 4/3/08)