**Section 725.984 Waste Determination Procedures**

a) Determination of Volatile Organic (VO) Concentration at the Point of Waste Origination

1) An owner or operator must determine the average VO concentration at the point of waste origination for each hazardous waste placed in a waste management unit exempted under the provisions of Section 725.983(c)(1) from using air emission controls in accordance with standards specified in Section 725.985 through Section 725.988, as applicable to the waste management unit.

A) An owner or operator must make an initial determination of the average VO concentration of the waste stream before the first time any portion of the material in the hazardous waste stream is placed in a waste management unit exempted under the provisions of Section 725.983(c)(1) from using air emission controls. Thereafter, an owner or operator must make an initial determination of the average VO concentration of the waste stream for each averaging period that a hazardous waste is managed in the unit.

B) An owner or operator must perform a new waste determination whenever changes to the source generating the waste stream are reasonably likely to cause the average VO concentration of the hazardous waste to increase to a level that is equal to or greater than the VO concentration limits specified in Section 725.983(c)(1).

2) For a waste determination that is required by subsection (a)(1), the average VO concentration of a hazardous waste at the point of waste origination must be determined using either direct measurement, as specified in subsection (a)(3), or by knowledge of the waste, as specified in subsection (a)(4).

3) Direct Measurement

A) Identification. The owner or operator must identify and record the point of waste origination for the hazardous waste.

B) Sampling. Samples of the hazardous waste stream must be collected at the point of waste origination in such a manner that volatilization of organics contained in the waste and in the subsequent sample is minimized and an adequately representative sample is collected and maintained for analysis by the selected method.

i) The averaging period to be used for determining the average VO concentration for the hazardous waste stream on a mass-weighted average basis must be designated and recorded. The averaging period can represent any time interval that the owner or operator determines is appropriate for the hazardous waste stream but must not exceed one year.

ii) A sufficient number of samples, but no fewer than four samples, must be collected for a hazardous waste determination. All of the samples for a given waste determination must be collected within a one-hour period. The average of the four or more sample results constitutes a waste determination for the waste stream. One or more waste determinations may be required to represent the complete range of waste compositions and quantities that occur during the entire averaging period due to normal variations in the operating conditions for the source or process generating the hazardous waste stream. Examples of such normal variations are seasonal variations in waste quantity or fluctuations in ambient temperature.

iii) All samples must be collected and handled in accordance with written procedures prepared by the owner or operator and documented in a site sampling plan. This plan must describe the procedure by which representative samples of the hazardous waste stream are collected so that a minimum loss of organics occurs throughout the sample collection and handling process, and by which sample integrity is maintained. A copy of the written sampling plan must be maintained on-site in the facility operating records. An example of an acceptable sampling plan includes a plan incorporating sample collection and handling procedures in Reference Method 25D (Determination of the Volatile Organic Concentration of Waste Samples) in appendix A to 40 CFR 60 (Test Methods), incorporated by reference in 35 Ill. Adm. Code 720.111(b).

iv) Sufficient information, as specified in the "site sampling plan" required under subsection (a)(3)(B)(iii), must be prepared and recorded to document the waste quantity represented by the samples and, as applicable, the operating conditions for the source or process generating the hazardous waste represented by the samples.

C) Analysis. Each collected sample must be prepared and analyzed in accordance with Reference Method 25D in appendix A to 40 CFR 60 for the total concentration of volatile organic constituents or using one or more methods when the individual organic compound concentrations are identified and summed and the summed waste concentration accounts for and reflects all organic compounds in the waste with Henry's law constant values at least 0.1 mole-fraction-in-the-gas-phase/mole-fraction-in-the-liquid-phase (0.1 Y/X) (which can also be expressed as 1.8 x 10-6 atmospheres/

gram-mole/m3) at 25 °C (77 °F). At the owner's or operator's discretion, the owner or operator may adjust test data measured by any appropriate method to discount any contribution to the total volatile organic concentration that is a result of including a compound with a Henry's law constant value of less than 0.1 Y/X at 25 °C. If the owner or operator elects to adjust test data, the adjustment must be made to all individual chemical constituents with a Henry's law constant value greater than or equal to 0.1 Y/X at 25 °C contained in the waste. To adjust these data, the measured concentration of each individual chemical constituent contained in the waste is multiplied by the constituent-specific adjustment factor (fm25D) approved in writing by the Agency. Other test methods may be used if they meet the requirements in subsection (a)(3)(C)(i) or (a)(3)(C)(ii) and provided the requirement is met to reflect all organic compounds in the waste with Henry's law constant values greater than or equal to 0.1 Y/X (which can also be expressed as 1.8 x 10-6 atmospheres/gram-mole/m3) at 25 °C.

i) Any USEPA standard method that has been validated in accordance with appendix D to 40 CFR 63 (Alternative Validation Procedure for EPA Waste and Wastewater Methods), incorporated by reference in 35 Ill. Adm. Code 720.111(b); or

ii) Any other analysis method that has been validated in accordance with the procedures specified in Section 5.1 or 5.3, and the corresponding calculations in Section 6.1 or 6.3, of Method 301 (Field Validation of Pollutant Measurement Methods from Various Waste Media) in appendix A to 40 CFR 63 (Test Methods), incorporated by reference in 35 Ill. Adm. Code 720.111(b). The data are acceptable if they meet the criteria specified in Section 6.1.5 or 6.3.3 of Method 301. If correction is required under Section 6.3.3 of Method 301, the data are acceptable if the correction factor is within the range 0.7 to 1.30. Other sections of Method 301 are not required.

D) Calculations

i) The average VO concentration () on a mass-weighted basis must be calculated by using the results for all waste determinations conducted in accordance with subsections (a)(3)(B) and (a)(3)(C) and the following equation:



Where:

|  |  |  |
| --- | --- | --- |
|  | = | Average VO concentration of the hazardous waste at the point of waste origination on a mass-weighted basis, in ppmw |
| i | = | Individual waste determination "i" of the hazardous waste |
| n | = | Total number of waste determinations of the hazardous waste conducted for the averaging period (not to exceed one year) |
| Qi | = | Mass quantity of the hazardous waste stream represented by Ci, in kg/hr |
| QT | = | Total mass quantity of the hazardous waste during the averaging period, in kg/hr |
| Ci | = | Measured VO concentration of waste determination "i", as determined in accordance with subsection (a)(3)(C) (i.e., the average of the four or more samples specified in subsection (a)(3)(B)(ii)), in ppmw |

ii) For the purpose of determining Ci, for individual waste samples analyzed in accordance with subsection (a)(3)(C), the owner or operator must account for VO concentrations determined to be below the limit of detection of the analytical method by using the VO concentration determined according to subsection (a)(3)(G).

E) Provided that the test method is appropriate for the waste as required under subsection (a)(3)(C), the Agency must determine compliance based on the test method used by the owner or operator as recorded under Section 725.990(f)(1).

F) The quality assurance program elements required under subsections (a)(3)(C)(vi) and (a)(3)(C)(vii) are as follows:

i) Documentation of site-specific procedures to minimize the loss of compounds due to volatilization, biodegradation, reaction, or sorption during the sample collection, storage, preparation, introduction, and analysis steps.

ii) Measurement of the overall accuracy and precision of the specific procedures.

BOARD NOTE: Subsections (a)(3)(F)(i) and (a)(3)(F)(ii) are derived from 40 CFR 265.984(a)(3)(iii)(F)(1), (a)(3)(iii)(F)(2), (a)(3)(iii)(G)(1), and (a)(3)(iii)(G)(2), which the Board has codified here to comport with Illinois Administrative Code format requirements.

G) VO concentrations below the limit of detection must be considered to be as follows:

i) If Reference Method 25D is used for the analysis, the VO concentration must be considered to be one-half the blank value determined in the method at Section 4.4 of Reference Method 25D.

ii) If any other analytical method is used, the VO concentration must be considered to be one-half the sum of the limits of detection established for each organic constituent in the waste that has a Henry's law constant value at least 0.1 mole-fraction-in-the-gas-phase/mole-fraction-in-the-liquid-phase (0.1 Y/X) (which can also be expressed as 1.8 x 10-6 atmospheres/gram-mole/m3) at 25 °C (77 °F).

BOARD NOTE: Subsections (a)(3)(G)(i) and (a)(3)(G)(ii) are derived from 40 CFR 265.984(a)(3)(iv)(A)(1) and (a)(3)(iv)(A)(2), which the Board has codified here to comport with Illinois Administrative Code format requirements.

4) Use of Owner or Operator Knowledge

A) Documentation must be prepared that presents the information used as the basis for the owner's or operator's knowledge of the hazardous waste stream's average VO concentration. Examples of information that may be used as the basis for knowledge include the following: material balances for the source or process generating the hazardous waste stream; constituent-specific chemical test data for the hazardous waste stream from previous testing that are still applicable to the current waste stream; previous test data for other locations managing the same type of waste stream; or other knowledge based on information included in manifests, shipping papers, or waste certification notices.

B) If test data are used as the basis for knowledge, then the owner or operator must document the test method, sampling protocol, and the means by which sampling variability and analytical variability are accounted for in the determination of the average VO concentration. For example, an owner or operator may use organic concentration test data for the hazardous waste stream that are validated in accordance with Method 301 as the basis for knowledge of the waste.

C) An owner or operator using chemical constituent-specific concentration test data as the basis for knowledge of the hazardous waste may adjust the test data to the corresponding average VO concentration value that would have been obtained had the waste samples been analyzed using Reference Method 25D. To adjust these data, the measured concentration for each individual chemical constituent contained in the waste is multiplied by the appropriate constituent-specific adjustment factor (fm25D).

D) In the event that the Agency and the owner or operator disagree on a determination of the average VO concentration for a hazardous waste stream using knowledge, then the results from a determination of average VO concentration using direct measurement, as specified in subsection (a)(3), must be used to establish compliance with the applicable requirements of this Subpart CC. The Agency may perform or request that the owner or operator perform this determination using direct measurement. The owner or operator may choose one or more appropriate methods to analyze each collected sample in accordance with the requirements of subsection (a)(3)(C).

b) Determination of VO Concentration at the Point of Waste Treatment

1) An owner or operator must perform the applicable waste determination for each treated hazardous waste placed in a waste management unit exempted under the provisions of Section 725.983(c)(2)(A) through (c)(2)(F) from using air emission controls in accordance with the standards specified in Sections 725.985 through 725.988, as applicable to the waste management unit.

A) An owner or operator must make an initial determination of the average VO concentration of the waste stream before the first time any portion of the material in the treated waste stream is placed in the waste management unit exempt under Section 725.983(c)(2), (c)(3), or (c)(4) from using air emission controls. Thereafter, an owner or operator must update the information used for the waste determination at least once every 12 months following the date of the initial waste determination.

B) An owner or operator must perform a new waste determination whenever changes to the process generating or treating the waste stream are reasonably likely to cause the average VO concentration of the hazardous waste to increase to such a level that the applicable treatment conditions specified in Section 725.983(c)(2), (c)(3), or (c)(4) are not achieved.

2) The owner or operator must designate and record the specific provision in Section 725.983(c)(2) under which the waste determination is being performed. The waste determination for the treated hazardous waste must be performed using the applicable procedures specified in subsections (b)(3) through (b)(9).

3) Procedure for Determination of VO Concentration

A) Identification. The owner or operator must identify and record the point of waste treatment for the hazardous waste.

B) Sampling. Samples of the hazardous waste stream must be collected at the point of waste treatment in such a manner that volatilization of organics contained in the waste and in the subsequent sample is minimized and an adequately representative sample is collected and maintained for analysis by the selected method.

i) The averaging period to be used for determining the average VO concentration for the hazardous waste stream on a mass-weighted average basis must be designated and recorded. The averaging period can represent any time interval that the owner or operator determines is appropriate for the hazardous waste stream but must not exceed one year.

ii) A sufficient number of samples, but no fewer than four samples, must be collected and analyzed for a hazardous waste determination. All of the samples for a given waste determination must be collected within a one-hour period. The average of the four or more sample results constitutes a waste determination for the hazardous waste stream. One or more waste determinations may be required to represent the complete range of waste compositions and quantities that occur during the entire averaging period due to normal variations in the operating conditions for the process generating or treating the hazardous waste stream. Examples of such normal variations are seasonal variations in waste quantity or fluctuations in ambient temperature.

iii) All samples must be collected and handled in accordance with written procedures prepared by the owner or operator and documented in a site sampling plan. This plan must describe the procedure by which representative samples of the hazardous waste stream are collected so that a minimum loss of organics occurs throughout the sample collection and handling process, and by which sample integrity is maintained. A copy of the written sampling plan must be maintained on-site in the facility operating records. An example of an acceptable sample collection and handling procedures for a total organic constituent concentration may be found in Reference Method 25D.

iv) Sufficient information, as specified in the "site sampling plan" required under subsection (a)(3)(B)(iii), must be prepared and recorded to document the waste quantity represented by the samples and, as applicable, the operating conditions for the process treating the hazardous waste represented by the samples.

C) Analysis. Each collected sample must be prepared and analyzed in accordance with Reference Method 25D for the total concentration of volatile organic constituents or using one or more methods when the individual organic compound concentrations are identified and summed, and the summed waste concentration accounts for and reflects all organic compounds in the waste with Henry's law constant values at least 0.1 mole-fraction-in-the-gas-phase/mole-fraction-in-the-liquid-phase (0.1 Y/X) (which can also be expressed as 1.8 x 10-6 atmospheres/gram-mole/m3) at 25 °C (77° F). When the owner or operator is making a waste determination for a treated hazardous waste that is to be compared to an average VO concentration at the point of waste origination or the point of waste entry to the treatment system, to determine if the conditions of 35 Ill. Adm. Code 724.982(c)(2)(A) through (c)(2)(F) or Section 725.983(c)(2)(A) through (c)(2)(F) are met, then the waste samples must be prepared and analyzed using the same method or methods as were used in making the initial waste determinations at the point of waste origination or at the point of entry to the treatment system. At the owner's or operator's discretion, the owner or operator may adjust test data obtained by any appropriate method to discount any contribution to the total volatile organic concentration that is a result of including a compound with a Henry's law constant value less than 0.1 Y/X at 25 °C. If the owner or operator elects to adjust test data, the adjustment must be made to all individual chemical constituents with a Henry's law constant value greater than or equal to 0.1 Y/X at 25 °C contained in the waste. To adjust these data, the measured concentration of each individual chemical constituent contained in the waste is multiplied by the constituent-specific adjustment factor (fm25D) approved in writing by the Agency. Other test methods may be used if they meet the requirements in subsection (a)(3)(C)(i) or (a)(3)(C)(ii) and provided the requirement is met to reflect all organic compounds in the waste with Henry's law constant values greater than or equal to 0.1 Y/X (which can also be expressed as 1.8 x 10-6 atmospheres/gram-mole/m3) at 25 °C.

i) Any USEPA standard method that has been validated in accordance with appendix D to 40 CFR 63, incorporated by reference in 35 Ill. Adm. Code 720.111(b); or

ii) Any other analysis method that has been validated in accordance with the procedures specified in Section 5.1 or 5.3, and the corresponding calculations in Section 6.1 or 6.3, of Method 301 in appendix A to 40 CFR 63, incorporated by reference in 35 Ill. Adm. Code 720.111(b). The data are acceptable if they meet the criteria specified in Section 6.1.5 or 6.3.3 of Method 301. If correction is required under Section 6.3.3 of Method 301, the data are acceptable if the correction factor is within the range 0.7 to 1.30. Other sections of Method 301 are not required.

D) Calculations. The average VO concentration () on a mass-weighted basis must be calculated by using the results for all samples analyzed in accordance with subsection (b)(3)(C) and the following equation:



Where:

|  |  |  |
| --- | --- | --- |
|  | = | Average VO concentration of the hazardous waste at the point of waste treatment on a mass-weighted basis, in ppmw |
| i | = | Individual determination "i" of the hazardous waste |
| n | = | Total number of waste determinations of the hazardous waste collected for the averaging period (not to exceed one year) |
| Qi | = | Mass quantity of the hazardous waste stream represented by Ci, in kg/hr |
| QT | = | Total mass quantity of hazardous waste during the averaging period, in kg/hr |
| Ci | = | Measured VO concentration of waste determinations "i", as determined in accordance with the requirements of subsection (b)(3)(C) (i.e., the average of the four or more samples specified in subsection (b)(3)(B)(ii)), in ppmw |

E) Provided that the test method is appropriate for the waste as required under subsection (b)(3)(C), compliance must be determined based on the test method used by the owner or operator as recorded under Section 725.990(f)(1).

4) Procedure for Determination of Exit Concentration Limit (Ct)

A) The point of waste origination for each hazardous waste treated by the process at the same time must be identified.

B) If a single hazardous waste stream is identified in subsection (b)(4)(A), then the exit concentration limit (Ct) must be 500 ppmw.

C) If more than one hazardous waste stream is identified in subsection (b)(4)(A), then the average VO concentration of each hazardous waste stream at the point of waste origination must be determined in accordance with the requirements of subsection (a). The exit concentration limit (Ct) must be calculated by using the results determined for each individual hazardous waste stream and the following equation:



Where:

|  |  |  |
| --- | --- | --- |
| Ct | = | Exit concentration limit for treated hazardous waste, in ppmw |
| x | = | Individual hazardous waste stream "x" that has an average VO concentration less than 500 ppmw at the point of waste origination, as determined in accordance with the requirements of subsection (a) |
| y | = | Individual hazardous waste stream "y" that has an average VO concentration equal to or greater than 500 ppmw at the point of waste origination, as determined in accordance with the requirements of subsection (a) |
| m | = | Total number of "x" hazardous waste streams treated by process |
| n | = | Total number of "y" hazardous waste streams treated by process |
| Qx | = | Annual mass quantity of hazardous waste stream "x", in kg/yr |
| Qy | = | Annual mass quantity of hazardous waste stream "y", in kg/yr |
| x | = | Average VO concentration of hazardous waste stream "x" at the point of waste origination, as determined in accordance with the requirements of subsection (a), in ppmw |

5) Procedure for Determination of Organic Reduction Efficiency (R)

A) The organic reduction efficiency (R) for a treatment process must be determined based on results for a minimum of three consecutive runs.

B) All hazardous waste streams entering the process and all hazardous waste streams exiting the treatment process must be identified. The owner or operator must prepare a sampling plan for measuring these streams that accurately reflects the retention time of the hazardous waste in the process.

C) For each run, information must be determined for each hazardous waste stream identified in subsection (b)(5)(B), using the following procedures:

i) The mass quantity of each hazardous waste stream entering the process (Qb) and the mass quantity of each hazardous waste stream exiting the process (Qa) must be determined; and

ii) The average VO concentration at the point of waste origination of each hazardous waste stream entering the process (Cb) during the run must be determined in accordance with the requirements of subsection (a)(3). The average VO concentration at the point of waste treatment of each hazardous waste stream exiting the process (Ca) during the run must be determined in accordance with the requirements of subsection (b)(3).

D) The waste volatile organic mass flow entering the process (Eb) and the waste volatile organic mass flow exiting the process (Ea) must be calculated by using the results determined in accordance with subsection (b)(5)(C) and the following equations:





Where:

|  |  |  |
| --- | --- | --- |
| Ea | = | Waste volatile organic mass flow exiting the process, in kg/hr |
| Eb | = | Waste volatile organic mass flow entering the process, in kg/hr |
| m | = | Total number of runs (at least 3); |
| j | = | Individual run "j" |
| Qbj | = | Mass quantity of hazardous waste entering the process during run "j", in kg/hr |
| Qaj | = | Average mass quantity of waste exiting the process during run "j", in kg/hr |
|  | = | Average VO concentration of hazardous waste exiting the process during run "j", as determined in accordance with the requirements of subsection (b)(3), in ppmw |
|  | = | Average VO concentration of hazardous waste entering the process during run "j", as determined in accordance with the requirements of subsection (a)(3), in ppmw |

E) The organic reduction efficiency of the process must be calculated by using the results determined in accordance with subsection (b)(5)(D) and the following equation:



Where:

|  |  |  |
| --- | --- | --- |
| R | = | Organic reduction efficiency, in percent |
| Eb | = | Waste volatile organic mass flow entering the process, as determined in accordance with the requirements of subsection (b)(5)(D), in kg/hr |
| Ea | = | Waste volatile organic mass flow exiting the process, as determined in accordance with the requirements of subsection (b)(5)(D), in kg/hr |

6) Procedure for Determination of Organic Biodegradation Efficiency (Rbio)

A) The fraction of organics biodegraded (Fbio) must be determined using the procedure specified in appendix C to 40 CFR 63 (Determination of the Fraction Biodegraded (Fbio) in a Biological Treatment Unit), incorporated by reference in 35 Ill. Adm. Code 720.111(b).

B) The organic biodegradation efficiency (Rbio) must be calculated by using the following equation:



Where:

|  |  |  |
| --- | --- | --- |
| Rbio | = | Organic biodegradation efficiency, in percent |
| Fbio | = | Fraction of organic biodegraded, as determined in accordance with the requirements of subsection (b)(6)(A) |

7) Procedure for Determination of Required Organic Mass Removal Rate (RMR)

A) All of the hazardous waste streams entering the treatment process must be identified.

B) The average VO concentration of the hazardous waste stream at the point of waste origination must be determined in accordance with the requirements of subsection (a).

C) For each individual hazardous waste stream that has an average volatile organic concentration equal to or greater than 500 ppmw at the point of waste origination, the average volumetric flow rate of hazardous waste and the density of the hazardous waste stream at the point of waste origination must be determined.

D) The required organic mass removal rate (RMR) for the hazardous waste must be calculated by using the average VO concentration, average volumetric flow rate, and density determined for each individual hazardous waste stream, and the following equation:



Where:

|  |  |  |
| --- | --- | --- |
| RMR | = | Required organic mass removal rate, in kg/hr; |
| y | = | Individual hazardous waste stream "y" that has an average volatile organic (VO) concentration equal to or greater than 500 ppmw at the point of waste origination, as determined in accordance with the requirements of subsection (a) |
| n | = | Total number of "y" hazardous waste streams treated by process |
| Vy | = | Average volumetric flow rate of hazardous waste stream "y" at the point of waste origination, in m3/hr |
| ky | = | Density of hazardous waste stream "y", in kg/m3 |
|  | = | Average VO concentration of hazardous waste stream "y" at the point of waste origination, as determined in accordance with the requirements of subsection (a), in ppmw |

8) Procedure for Determination of Actual Organic Mass Removal Rate (MR)

A) The actual organic mass removal rate (MR) must be determined based on results for a minimum of three consecutive runs. The sampling time for each run must be one hour.

B) The waste volatile organic mass flow entering the process (Eb) and the waste volatile organic mass flow exiting the process (Ea) must be determined in accordance with the requirements of subsection (b)(5)(D).

C) The actual organic mass removal rate (MR) must be calculated by using the mass flow rate determined in accordance with the requirements of subsection (b)(8)(B) and the following equation:



Where:

|  |  |  |
| --- | --- | --- |
| MR | = | Actual organic mass removal rate, in kg/hr |
| Eb | = | Waste volatile organic mass flow entering the process, as determined in accordance with the requirements of subsection (b)(5)(D), in kg/hr |
| Ea | = | Waste volatile organic mass flow exiting the process, as determined in accordance with the requirements of subsection (b)(5)(D), in kg/hr |

9) Procedure for Determination of Actual Organic Mass Biodegradation Rate (MRbio)

A) The actual organic mass biodegradation rate (MRbio) must be determined based on results for a minimum of three consecutive runs. The sampling time for each run must be one hour.

B) The waste organic mass flow entering the process (Eb) must be determined in accordance with the requirements of subsection (b)(5)(D).

C) The fraction of organic biodegraded (Fbio) must be determined using the procedure specified in appendix C to 40 CFR 63 (Determination of the Fraction Biodegraded (Fbio) in a Biological Treatment Unit), incorporated by reference in 35 Ill. Adm. Code 720.111(b).

D) The actual organic mass biodegradation rate (MRbio) must be calculated by using the mass flow rates and fraction of organic biodegraded, as determined in accordance with the requirements of subsections (b)(9)(B) and (b)(9)(C), respectively, and the following equation:



Where:

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| MRbio | | = | | Actual organic mass biodegradation rate, in kg/hr | |
| Eb | | = | | Waste organic mass flow entering the process, as determined in accordance with the requirements of subsection (b)(5)(D), in kg/hr | |
| Fbio | | = | | Fraction of organic biodegraded, as determined in accordance with the requirements of subsection (b)(9)(C) | |

c) Procedure for Determination of VO in a Tank

1) An owner or operator must determine the maximum organic vapor pressure for each hazardous waste placed in a tank using Tank Level 1 controls in accordance with standards specified in Section 725.985(c).

2) An owner or operator must use either direct measurement, as specified in subsection (c)(3), or knowledge of the waste, as specified by subsection (c)(4), to determine the maximum organic vapor pressure that is representative of the hazardous waste composition stored or treated in the tank.

3) Direct Measurement to Determine VO

A) Sampling. A sufficient number of samples must be collected to be representative of the waste contained in the tank. All samples must be conducted and handled in accordance with written procedures prepared by the owner or operator and documented in a site sampling plan. This plan must describe the procedure by which representative samples of the hazardous waste are collected so that a minimum loss of organics occurs throughout the sample collection and handling process and by which sample integrity is maintained. A copy of the written sampling plan must be maintained on-site in the facility operating records. An example of acceptable sample collection and handling procedures may be found in Reference Method 25D.

B) Analysis. Any appropriate one of the following methods may be used to analyze the samples and compute the maximum organic vapor pressure of the hazardous waste:

i) Reference Method 25E (Determination of Vapor Phase Organic Concentration in Waste Samples) in appendix A to 40 CFR 60 (Test Methods), incorporated by reference in 35 Ill. Adm. Code 720.111(b);

ii) Methods described in API publication 2517 (Evaporative Loss from External Floating-Roof Tanks), incorporated by reference in 35 Ill. Adm. Code 720.111(a);

iii) Methods obtained from standard reference texts;

iv) ASTM Method D 2879-92 (Standard Test Method for Vapor Pressure-Temperature Relationship and Initial Decomposition Temperature of Liquids by Isoteniscope), incorporated by reference in 35 Ill. Adm. Code 720.111(a); or

v) Any other method approved by the Agency.

4) Use of Knowledge to Determine the Maximum Organic Vapor Pressure of the Hazardous Waste. Documentation must be prepared and recorded that presents the information used as the basis for the owner's or operator's knowledge that the maximum organic vapor pressure of the hazardous waste is less than the maximum vapor pressure limit listed in Section 725.985(b)(1)(A) for the applicable tank design capacity category. An example of information that may be used is documentation that the hazardous waste is generated by a process for which at other locations it previously has been determined by direct measurement that the waste maximum organic vapor pressure is less than the maximum vapor pressure limit for the appropriate tank design capacity category.

d) The procedure for determining no detectable organic emissions for the purpose of complying with this Subpart CC is as follows:

1) The test must be conducted in accordance with the procedures specified in Reference Method 21 (Determination of Volatile Organic Compound Leaks) of appendix A to 40 CFR 60 (Test Methods), incorporated by reference in 35 Ill. Adm. Code 720.111(b). Each potential leak interface (i.e., a location where organic vapor leakage could occur) on the cover and associated closure devices must be checked. Potential leak interfaces that are associated with covers and closure devices include, but are not limited to, any of the following: the interface of the cover and its foundation mounting, the periphery of any opening on the cover and its associated closure device, and the sealing seat interface on a spring-loaded pressure relief valve.

2) The test must be performed when the unit contains a hazardous waste having an organic concentration representative of the range of concentrations for the hazardous waste expected to be managed in the unit. During the test, the cover and closure devices must be secured in the closed position.

3) The detection instrument must meet the performance criteria of Reference Method 21, except the instrument response factor criteria in Section 3.1.2(a) of Reference Method 21 must be for the average composition of the organic constituents in the hazardous waste placed in the waste management unit, not for each individual organic constituent.

4) The detection instrument must be calibrated before use on each day of its use by the procedures specified in Reference Method 21.

5) Calibration gases must be as follows:

A) Zero air (less than 10 ppmv hydrocarbon in air), and

B) A mixture of methane or n-hexane in air at a concentration of approximately, but less than, 10,000 ppmv methane or n-hexane.

6) The background level must be determined according to the procedures in Reference Method 21.

7) Each potential leak interface must be checked by traversing the instrument probe around the potential leak interface as close to the interface as possible, as described in Reference Method 21. If the configuration of the cover or closure device prevents a complete traverse of the interface, all accessible portions of the interface must be sampled. If the configuration of the closure device prevents any sampling at the interface and the device is equipped with an enclosed extension or horn (e.g., some pressure relief devices), the instrument probe inlet must be placed at approximately the center of the exhaust area to the atmosphere.

8) The arithmetic difference between the maximum organic concentration indicated by the instrument and the background level must be compared with the value of 500 ppmv except when monitoring a seal around a rotating shaft that passes through a cover opening, in which case the comparison must be as specified in subsection (d)(9). If the difference is less than 500 ppmv, then the potential leak interface is determined to operate with no detectable organic emissions.

9) For the seals around a rotating shaft that passes through a cover opening, the arithmetic difference between the maximum organic concentration indicated by the instrument and the background level must be compared with the value of 10,000 ppmw. If the difference is less than 10,000 ppmw, then the potential leak interface is determined to operate with no detectable organic emissions.

(Source: Amended at 44 Ill. Reg. 15374, effective September 3, 2020)