

List of Questions and Answers for Batch Process Vents

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Batch Process Vents

Requirements for Batch Process Vents are found in 63.1321 thru 63.1327 of 40 C.F.R. Part 63.

What is a Batch Process Vent? (63.1312)

A process vent with annual organic HAP emissions greater than 225 kilograms per year from a batch unit operation within an affected source. Annual organic HAP emissions are determined as specified in 63.1323(b) at the location specified in 63.1323 (a)(2).

How do I determine what Group my Batch Process Vent Belongs to? (63.1323)

Calculations are found in section 63.1323 that allow a source to calculate the TOC (total organic carbon) or organic HAP.

If your annual emissions from the process vent are calculated as less than 11,800 kg/yr, the Batch Process Vent is considered a Group 2 stream. (63.1323 (d)).

There are two calculations an owner or operator needs to complete to determine the Group Determination (63.1323 (g)):

- Cut off Flow Rate (63.1323 (f))
- Annual Average batch vent flow rate (63.1323 (e))

If the Cut off Flow Rate \geq Annual Average Batch Vent Flow Rate: Group 1 Stream

If the Cut off Flow Rate $<$ Annual Average Batch Vent Flow Rate: Group 2 Stream

What are the general control requirements for a Group 1 Batch Process Vent? (63.1322)

A owner or operator can chose to comply with one of the following control options:

- Reduce organic HAP emissions using a flare (63.1322 (a)(1)).
 - Flare must comply with section 63.1333(e) which requires the following that must be done using protocols found in the General Provisions under 63.11.
 - Requires a visible emission test using techniques
 - Determine the net heating value of gas being combusted.
 - Determine the exit velocity
- Halogenated batch process vents shall not be vented to a flare.

-63.1322 (a)(2) For each batch process vent, reduce organic HAP emissions for the batch cycle by 90 wt% using a control device. Compliance can be demonstrated by controlling selected batch emission episodes on control of portions of selected batch emission control episodes. Documentation of the 90 wt% reduction is required in section 63.1325 (c)(2).

What is the specific requirement for batch process vents for a new affected source making SAN?

63.1322 (a)(3) If you are a new affected source making SAN using a batch process, an owner or operator must reduce HAP emissions from the collection of batch process vents, aggregate batch vent streams, and continuous vents by 84 wt%. Compliance is demonstrated using procedures in 63.1333 (c).

What is an aggregate batch vent stream? (63.1312)

A gaseous emission stream containing only the exhausts from two or more batch process vents that are ducted, hardpiped, or otherwise connected together for a continuous flow.

What are the general control requirements for an aggregate batch vent stream? (63.1322(b))

If the aggregate batch vent stream contains one or more Group 1 batch process vents they can comply with one of the following options.

- Reduce organic HAP emissions using a flare (63.1322 (b)(1)).
 - Flare must comply with section 63.1333(e) which requires the following that must be done using protocols found in the General Provisions under 63.11.
 - Requires a visible emission test using techniques
 - Determine the net heating value of gas being combusted.
 - Determine the exit velocity

-Halogenated batch process vents shall not be vented to a flare.

-63.1322 (b)(2) For each aggregate batch vent stream reduce organic HAP emissions by 90 wt% or to a concentration of 20 ppmv, whichever is less stringent, on a continuous basis using a control device.

- If controlling to 20 ppmv the outlet concentration must be calculated on a dry basis.

- If controlling to 20 ppmv and a combustion device is used, the outlet concentration shall be corrected to 3% oxygen if supplemental combustion air is used.

What is the specific control requirement for aggregate batch vent streams for a new affected source making SAN?

63.1322 (a)(3) If you are a new affected source making SAN using a batch process, an owner or operator must reduce HAP emissions from the collection of batch process vents, aggregate batch vent streams, and continuous vents by 84 wt%. Compliance is demonstrated using procedures in 63.1333 (c).

What are the specific control requirements for Group 1 halogenated streams? (63.1322 (c))

Halogenated streams can be controlled using one of the following mechanisms.

63.1322(c)(1) If a combustion device is used, emissions exiting the combustion device shall be ducted to a halogen reduction device that reduces overall emissions of hydrogen halides and halogens by at least 99% before discharge to the atmosphere.

63.1322 (c)(2) A halogen reduction device may be used to reduce the halogen atom mass emission rate to less than 3,750 kg/yr for batch process vents or aggregate batch vent streams and less than 0.45 kg/hr for continuous processes prior to venting to any combustion control device. This re-designates the stream as a non-halogenated stream.

What are the requirements for Group 2 Batch process vents? 63.1322 (f) & (g)

Group 2 vents that have emissions greater than or equal to 11,800 kg/yr can comply with one of the following two options.

- 1) Complete all of the following:
 - a) establish a batch mass input limit that insures that the Group 2 vent does not become a Group 1 vent.
 - b) during the affected sources year the owner shall not charge a mass of HAP or material to the unit greater than the established batch mass input limit.
 - c) keep records designating the established batch mass input limitation and records specifying the mass of HAP or material charged to the batch unit. (63.1326 (d)(2))
 - d) if process changes are made the owner or operator should follow the procedures found in 63.1323(i) to redetermine the Group status of the stream and necessary requirements.
- 2) Comply with the requirements for a Group 1 stream.

Group 2 process vents with emissions less than 11,800 kg/yr shall comply with one of the following options:

- 1) comply with the following:
 - a) establish a batch mass input limitation that ensures emissions do not exceed 11,800 kg/yr.
 - b) not charge mass of HAP or material to the batch unit operation that is greater than the level established as the batch mass input limitation.

- c) keep records designating the established batch mass input limitation and records specifying the mass of HAP or material charged to the batch unit. (63.1326 (d)(1))
 - d) if process changes are made the owner or operator should follow the procedures found in 63.1323(i) to redetermine the Group status of the stream and necessary requirements.
- 2) Comply with the requirements for a Group 2 batch process vent that has an annual emission rate greater or equal to 11,800 kg/yr.
 - 3) Comply with the Group 1 batch process vent requirements.

No batch mass input limitation must be made if the stream meets the following conditions and comply with following recordkeeping and reporting requirements. (63.1322 (h))

- 1) Stream is still considered a Group 2 stream when emissions for the single highest HAP recipe (considering all products produced) is used in the group determination and
- 2) The group determination assumes that the batch unit operation is operating at the maximum design capacity of the TPPU for 12 months.

Recordkeeping Requirements:

63.1326 (a)(1) thru (a)(6)

- 1) Identification of each unique product that has emissions from one or more batch emission episodes venting from the batch process vent, along with identification of the highest-HAP recipe for each product and the mass of HAP fed to the reactor for that recipe.
- 2) A description of, and an emission estimate for, each batch emission episode, and the total emissions associated with one batch cycle, as described in one of the following:
 - i) If the group determination is based on the expected mix of products, records shall include the emission estimates for the single highest-HAP recipe of each unique product identified in paragraph (a)(1) of this section that was considered in making the group determination.
 - ii) If the group determination is based on the single highest-HAP recipe (considering all products) records shall include the emission estimates for the single highest-HAP recipe.
- 3) Total annual uncontrolled TOC or organic HAP emissions, determined at the exit from the batch unit operation before any control device, determined in

accordance with 63.1323(b).

- a) For Group 2 batch process vents, emissions shall be determined at the batch mass input limitation.
- 4) The annual average batch vent flow rate for the batch process vent, determined in accordance to 63.1323 (e)
- 5) The cutoff flow rate, determined in accordance with 63.1323(f)
- 6) The results of the batch process vent group determination in accordance with 63.1323 (g)

63.1326 (a)(9)

Document the maximum design capacity of the TPPU and the mass of HAP or material that can be charged annually to the batch unit operation at the maximum design capacity.

Reporting Requirements: 63.1327 (a)(5), (a)(6) & b

In the notification of Compliance Status supply the following:

- (a)(5) For each Group 2 batch process vent exempt from the batch mass input limitation provisions calculated at the maximum design capacity and with the single highest-HAP recipe.
 - 1) Identification of each unique product that has emissions from one or more batch emission episodes venting from the batch process vent, along with identification of the highest-HAP recipe for each product and the mass of HAP fed to the reactor for that recipe.
 - 2) A description of, and an emission estimate for, each batch emission episode, and the total emissions associated with one batch cycle, as described in one of the following:
 - i) If the group determination is based on the expected mix of products, records shall include the emission estimates for the single highest-HAP recipe of each unique product identified in paragraph (a)(1) of this section that was considered in making the group determination.
 - ii) If the group determination is based on the single highest-HAP recipe (considering all products) records shall include the emission estimates for the single highest-HAP recipe.
 - 3) Total annual uncontrolled TOC or organic HAP emissions, determined

at the exit from the batch unit operation before any control device, determined in accordance with 63.1323(b).

- i) For Group 2 batch process vents, emissions shall be determined at the batch mass input limitation.
 - 4) The annual average batch vent flow rate for the batch process vent, determined in accordance to 63.1323 (e)
 - 5) The cutoff flow rate, determined in accordance with 63.1323(f)
 - 6) The results of the batch process vent group determination in accordance with 63.1323 (g)
- (a)(6) When engineering assessment has been used to estimate emissions from a batch emission episode the owner or operator shall supply the information demonstrating that criteria in 63.1323 (b)(6)(i)(A) or (B) has been met.
- (b) Whenever a process change is made that causes a Group 2 batch process vent to become a Group 1 batch process vent, the owner or operator shall notify the Administrator and submit a description of the process change within 180 days after the change or when the next Periodic Report is due (whichever is later) and the owner or operator shall comply with the Group 1 batch process vent requirements.

What are the Monitoring Requirements for Batch Process Vents? 63.1324 (c), (d) & (e)

Monitoring equipment must be operating at all times during the batch or during the portions that the owner or operator has chosen to control, or are vented to the control device or at all times when an aggregate batch vent stream is vented to the control device.

Owner or operator shall operate control devices such that the daily average of monitored parameters established are above the minimum level, or below the maximum level as appropriate.

Control Device	Monitoring Device	Comments
Incinerator	temperature monitoring device with continuous recorder	For any Incinerator other than a catalytic incinerator the temperature monitoring device shall be installed in the fire box or in the duct work immediately downstream of the fire box in a positions before any substantial heat exchange occurs.
Catalytic Incinerator	temperature monitoring device with continuous recorder	Temperature monitoring device shall be installed in the gas stream immediately before and after the catalyst bed.
Flare	Device capable of continuously detecting the presence of a pilot flame is required.	Examples of some devices include: thermocouple, ultra-violet beam sensor, or infrared sensor
Boiler or process heater less than 44 MW design heat input capacity	Temperature monitoring device in firebox equipped with a continuous recorder is required	Any boiler or process heater in which all batch process vents or aggregate batch vent streams are introduced with the primary fuel or are used as the primary fuel is exempt from this requirement.

Control Device	Monitoring Device	Comments
<p>Scrubber used with incinerator, boiler, or process heater in concert with the combustion of halogenated batch process vents or halogenated aggregate batch vent streams</p>	<p>1) pH monitor equipped with a continuous recorder to monitor the pH of scrubber effluent.</p> <p>2) A flow measurement device equipped with a continuous recorder located at the scrubber influent for liquid flow.</p>	<p>Gas stream flow shall be determined using one of the following procedures.</p> <p>a) using the design blower capacity with appropriate adjustment for pressure drop.</p> <p>b) if subject to 40 C.F.R. 264-266 that have required determination for liquid to gas ratio prior to applicable compliance date for this subpart, the owner or operator may determine gas stream flow by the method that had been utilized to comply with 264-266. A determination that was conducted prior to the compliance date for this subpart may be used to comply if it is still representative.</p>
<p>Scrubber used with incinerator, boiler, or process heater in concert with the combustion of halogenated batch process vents or halogenated aggregate batch vent streams (cont.)</p>		<p>c) prepare and implement a gas stream flow determination plan. Must include a plan that provides the value for representative gas stream flow or highest gas stream flow anticipated. Must include Methodology to be followed and why it will reliably determine the gas stream flow, and a description of the records that will be maintained to document the determination of gas stream flow. The owner or operator shall maintain the plan as specified in 63.1335 (a)</p>

Control Device	Monitoring Device	Comments
Absorber	<p>1) a scrubbing liquid temperature monitoring device; and</p> <p>2) a specific gravity monitor device, each with a continuous recorder.</p>	Alternative: may install an organic monitoring device equipped with a continuous recorder, at outlet.
Condenser	Condenser exit temperature (product side) monitor device equipped with a continuous recorder.	Alternative: may install an organic monitoring device equipped with a continuous recorder, at outlet.
Carbon Absorber	<p>1) an integrating regeneration steam flow or nitrogen flow; or</p> <p>2) pressure monitoring device having an accuracy of +/- 10% percent of flow rate level, or pressure, or better, capable of recording the total regeneration steam flow or nitrogen flow, or pressure (gauge or absolute) for each regeneration cycle;</p> <p>Must also have a carbon bed temperature monitoring device, capable of recording the carbon temperature after each regeneration and within 15 minutes of completing any cooling cycle is required.</p>	Alternative: may install an organic monitoring device equipped with a continuous recorder, at outlet.
Alternative Control or Monitoring		Must submit a request according to procedures in 63.1327 (f) and 63.1335 (f).

Control Device	Monitoring Device	Comments
Bypass Lines	<p>Chose One:</p> <p>1) properly install, maintain, and operate a flow indicator that takes readings at least once every 15 minutes. Records shall be generated as specified in 63.1326 (e)(3). The flow indicator shall be installed at the entrance to any bypass line that could divert emissions away from the control device and into the atmosphere.</p> <p>2) Secure the bypass line damper or valve in the non-diverting position with a car-seal or lock and key type configuration. A visual inspection of the seal or closure mechanism shall be performed at least once every month to ensure that the damper or valve is maintained in the non-diverting position and emissions are not diverted through the bypass line. Records shall be generated as specified in 63.1326(e)(4).</p>	Equipment such as log leg drains, high point bleeds, analyzer vents, open-ended valves or lines, and pressure relief valves needed for safety purposes are not subject to these requirements.

How do I know my batch processing parameter monitoring levels? (63.1324 (f))

For each control device that requires parameter monitoring, the owner or operator should establish a maximum or minimum operating parameter that indicates proper operation of the control device. The level should be established using methods in 63.1334. In addition, the length of an operating day should be defined as part of establishing the parameter monitoring as specified in 63.1324(f)(3).

- For Batch Process Vents using a control device to control emissions by 90% (63.1322(a)(2)), the level shall reflect the control efficiency established as part of the initial compliance demonstration in 63.1325 (c)(2).

-For aggregate batch vent streams using a control device to control emissions by 90% (63.1322(a)(2)) the establish level shall reflect the applicable emission reduction requirement

specified in 63.1322(b)(2).

-For SAN Batch Process vents and Aggregate Batch Vent Streams using a control device to comply with 84%, the level shall reflect the control efficiency established as part of the initial compliance demonstration in 63.1325 (f)(4).

The established level, length of operating day, and supporting documents should be contained and submitted with the company's Notification of Compliance Status. (63.1324 (f)(2).

Do I need to conduct a performance test? (63.1325)

Yes, unless the following conditions occur:

You are using a flare to achieve compliance. See section 63.1333(e)

You have chosen to control your HAPs to 90%, option found in section 63.1322(a)(2), or control HAPS from an SAN unit to 84%, option found in section 63.1322(a)(3), using the following control devices.

- 1) You are venting to a boiler or process heater with a design heat input capacity of 44 MW or greater. [63.1325(b)(1)].
- 2) You are venting to a boiler or process heater where the vent stream is introduced with the primary fuel or is used as the primary fuel. [63.1325(b)(2)].
- 3) You are venting to a control device for which a performance test was conducted for compliance with another regulation promulgated by EPA and the test was conducted using the same Methods specified in this regulation, and no deliberate process changes have been made since the last test. The prior test can also be used if process changes have been made if the owner or operator can demonstrate that the previous results are still valid despite process changes. [63.1325(b)(3)]
- 4) You are venting to a boiler or process heater burning hazardous waste for which the owner or operator [63.1325(b)(4)]:
 - S** Has been issued a final permit under 40 C.F.R. part 270 and complies with the requirements of 40 C.F.R. part 266 subpart H; or
 - S** Has certified compliance with the interim status requirements of 40 C.F.R. part 266 subpart H.
- 5) You are venting to a hazardous waste incinerator for which the owner or operator has been issued a final permit under 40 C.F.R. part 270 and complies with the requirements of 40 C.F.R. part 264, subpart O, or has certified compliance with the interim status requirements of 40 C.F.R. part 264, subpart O [63.1325(b)(5)].

So I have to do a performance test, what are my test methods? [63.1325]

If you chose to comply by reducing HAP emissions by 90%, option found in 63.1322(a)(2), compliance can be based on total organic HAP or TOC (Total organic Compounds).

If you chose to comply with the aggregate batch vent stream testing (reduce HAP emissions by 90% or 20ppmv) follow methods in 63.116 (c). Except that Method 18 or Method 25A can be used.

During the performance test, the test should be performed for the entire portion of each batch emission episode that the owner or operator has chosen to control in order to meet the 90% reduction [63.1325(c)(1)(i)].

The owner or operator can opt to test only or portion of the batch emission episode where the emissions are greater than the average emission rate of the entire release, but must document the batch emission profile based on either process knowledge or test data collected [63.1325(c)(1)(i)(A)].

Test Methods From 40 C.F.R. Part 60 Appendix A (unless otherwise noted)	Purpose	Comments
Method 1 or 1A	Flow measurement using pitot tube.	References to particulate matter do not apply. No traverse necessary if Method 2A or 2D is used to determine gas stream volumetric flow rate.
Method 2A or 2D	Volumetric Flow Rate	

Test Methods From 40 C.F.R. Part 60 Appendix A (unless otherwise noted)	Purpose	Comments
Method 18 or Method 25A	Determine the concentration of organic HAP or TOC, as appropriate.	<p>Other methods or data can be used if validated according to Method 301 in appendix A of 40 C.F.R. Part 63.</p> <p>Calibration gas for Method 25A should be the single organic HAP representing the largest percent by volume of the emissions.</p> <p>Using Method 25A is acceptable if the response factor from the high level calibration gas is at least 20 times the standard deviation of the response from the zero calibration gas when instrument is on most sensitive scale.</p>
Method 26 or Method 26A	Used to determine the concentration in Mg per dscm of hydrogen halides and halogens present in the emissions stream.	

Now, how do I determine compliance? (63.1325)

Equations for the calculations are found in section 63.1325.

Equation Number	Purpose	Comments
Eq. 19 and 20	Emissions per batch emission episode.	Used if an integrated sample is taken over the entire test to determine an average batch vent concentration of TOC of HAP.

Equation Number	Purpose	Comments
Eq. 21 and 22	To calculate the emission rate for each measurement point.	Used if grab samples are taken to determine average batch vent concentration of TOC or HAP.
Eq. 23 and 24	To calculate the emission per batch emission episode.	Used if grab samples are taken to determine the average batch vent concentration of TOC or HAP.
Eq. 25	To calculate the control efficiency for the control device.	
Eq. 26	To calculate the percent reduction for batch cycle.	<p>If performance test required data from Eq 25 is used.</p> <p>If performance test is not required for a combustion control device the control efficiency is 98%.</p> <p>If a performance test is not required for a noncombustion control device the control efficiency shall be determined by the owner or operator based on engineering assessment.</p>

What types of records do I need to keep? (63.1326)

Group Determination Records [63.1326(a)]: Records are restricted to the records developed and used to make the Group Determination.

Compliance Demonstration Records [63.1326(b)]:

Establishment of Parameter Monitoring Records [63.1326(c)]:

Group 2 Batch Process Vent Continuous Compliance Records [63.1326(d)]

Controlled Batch Process Vent Continuous Compliance Records [63.1326(e)]

Aggregate Batch Vent Stream Continuous Compliance Records [63.1326(f)]

Documentation Supporting the Establishment of the Batch Mass Input Limitation. [63.1326(e)]

What types of reports exist? (63.1327)

Notifications of Compliance Status
Periodic Reports

What should be in the Notification of Compliance status? [63.1327(a)]

For each batch process vent complying with 63.1322(a) or (b) the following information as appropriate [63.1327(a)(1)]:

Compliance demonstration Records required in 63.1326(b)
Establishment of parameter monitoring levels as required in 63.1326 (c)

For each Group 2 batch process vent with annual emission less than 11,800 kg/yr the following information [63.1327(a)(2)].

The records designating the established batch mass input limitation required by 63.1322(g)(1) and 63.1325(g)

For each Group 2 batch process vent with annual emissions greater than or equal to 11,800 kg/yr the following information [63.1327(a)(3)].

The records designating the established batch mass input limitation required by 63.1322(f)(1) and specified in 63.1325(g).

For each batch process vents subject to the group determination procedures, the information specified below [63.1327(a)(4)].

Group Determination records in 63.1326(a), as appropriate.

For each Group 2 batch process vent that is exempt from the batch mass input limitation provision the following information [63.1327(a)(5)]

Group Determination records in 63.1326(a), as appropriate specifically 63.1326 (a)(1 thru 3) and 63.1326(a)(4 thru 6) as calculated at conditions in 63.1322(h).

When engineering assessment has ben used to estimate emissions from a batch emission episode and criteria in 63.1323(b)(6)(i)(A) or (B) have been met, submit the information demonstrating that the criteria has been met [63.1327(a)(6)].

What information should be in a Periodic Report?

The following information should be reported to the Administrator within 180 days of process

changes or in the next Periodic Report, whichever is later.

Whenever a process change is made that causes a Group 2 batch process vent to become a Group 1 batch process vent, the owner or operator shall notify the Administrator and submit a description of the process change within 180 days after the change or when the next Periodic Report is due (whichever is later) and the owner or operator shall comply with the Group 1 batch process vent requirements.

Whenever a process change is made that causes a Group 2 batch process vent below 11,800 kg/yr of emissions to have emissions equal to or greater than 11,800 kg/yr but remain a Group 2 process vent,

Whenever a process change is made to Group 2 batch process vent batch that requires the owner or operator to redetermine the mass input limitation changes, in order to remain Group 2, the owner or operator shall notify the Administrator and submit a description of the process change and the batch mass input limitation determined in accordance with 63.1322(f)(1) within 180 days after the change or when the next Periodic Report is due (whichever is later). **Note: if the mass input limitation does not decrease no notification is required.**

Whenever a process change is made that could potentially cause the percent reduction for all process vents at a new SAN affected source using a batch process to be less than 84%, the owner or operator shall notify the Administrator and submit a description of the process change within 180 days after the change or when the next Periodic Report is due (whichever is later) and comply with 63.1322(a)(3) and all associated provisions in accordance with 63.1310(i). **Note: if the percent reduction remains 84% or higher no notification is required.**

The Periodic report should also contain the following information for Bypass lines:

Reports of all times of all periods when the batch process vent is diverted from the control device through a bypass line [63.1327(g)(1)].

Reports of all occurrences recorded when the seal mechanism is broken, the bypass line damper, or valve position has changed, or to the key to unlock the bypass line damper or valve was checked out [63.1327(g)(2)].