(2) Each month, calculate and record the organic HAP emissions from all back-end process operations using engineering assessment. Engineering assessment includes, but is not limited to, the following:

(i) Previous test results, provided the test was representative of current operating practices.

(ii) Bench-scale or pilot-scale test data obtained under conditions representative of current process operating conditions.

(iii) Design analysis based on accepted chemical engineering principles, measurable process parameters, or physical or chemical laws or properties. Examples of analytical methods include, but are not limited to:

(A) Use of material balances;

(B) Estimation of flow rate based on physical equipment design, such as pump or blower capacities;

(C) Estimation of organic HAP concentrations based on saturation conditions; and

(D) Estimation of organic HAP concentrations based on grab samples of the liquid or vapor.

(3) Each month, record the mass of elastomer product produced.

(4) Each month, calculate and record the sums of the organic HAP emissions and the mass of elastomer produced for the previous calendar 12-month period.

(5) Each month, divide the total mass of organic HAP emitted for the previous calendar 12-month period by the total mass of elastomer produced during this 12-month period. This value must be recorded in accordance with §63.498(e) and reported in accordance with §63.499(f)(2).


§63.496 Back-end process provisions—procedures to determine compliance with residual organic HAP limitations using control or recovery devices.

(a) If an owner or operator complies with the residual organic HAP limitations in §63.494(a)(1) through (3) using control or recovery devices, compliance shall be demonstrated using the procedures in paragraphs (b) and (c) of this section. Previous test results conducted in accordance with paragraphs (b)(1) through (6) of this section may be used to determine compliance in accordance with paragraph (c) of this section.

(b) Compliance shall be demonstrated using the provisions in paragraphs (b)(1) through (b)(6) of this section, as applicable.

(1) A test shall be conducted, the duration of which shall be in accordance with either paragraph (b)(1)(i) or (b)(1)(ii) of this section, as appropriate.

(i) If the back-end process operations are continuous, the test shall consist of three separate one hour runs.

(ii) If the back-end process operations are batch, the test shall consist of three separate one-hour runs, unless the duration of the batch cycle is less than one-hour, in which case the run length shall equal the complete duration of the back-end process batch cycle.

(2) The test shall be conducted when the grade of elastomer product with the highest residual organic HAP content leaving the stripper is processed in the back-end operations.

(3) The uncontrolled residual organic HAP content in the latex or dry crumb rubber shall be determined in accordance with §63.495(b)(1) and (b)(3). A separate sample shall be taken and analyzed for each test run. The sample shall be representative of the material being processed in the back-end operation during the test, and does not need to be taken during the test.

(4) The quantity of material (weight of latex or dry crumb rubber) processed during the test run shall be recorded. Acceptable methods of determining this quantity are production records, measurement of stream characteristics, and engineering calculations.

(5) The inlet and outlet emissions from the inlet or recovery device shall be determined using the procedures in paragraphs (b)(5)(1) through (b)(5)(v) of this section, with the exceptions noted in paragraphs (b)(6) and (b)(7) of this section. The inlet and outlet emissions shall be determined when the material for which the uncontrolled residual organic HAP content is determined in accordance with paragraph (b)(3) of this section, is being
processed in the equipment controlled
by the control or recovery device.

(i) Method 1 or 1A of 40 CFR part 60,
appendix A, as appropriate, shall be
used for selection of the sampling sites.
Sampling sites for inlet emissions shall
be located as specified in paragraphs
(b)(5)(1)(A) or (b)(5)(1)(B) of this section.
Sampling sites for outlet emissions
shall be located at the outlet of the
control or recovery device.

(A) The inlet sampling site shall be
located at the exit of the back-end
process unit operation before any op-
portunity for emission to the atmos-
phere [with the exception of equipment
in compliance with the requirements in
§§ 63.502(a) through 63.502(m)], and be-
fore any control or recovery device.

(B) If back-end process vent streams
are combined prior to being routed to
control or recovery devices, the inlet
sampling site may be for the combined
stream, as long as there is no oppor-
tunity for emission to the atmosphere
[with the exception of equipment in
compliance with the requirements in
§§ 63.502(a) through 63.502(m)] from any
of the streams prior to being combined.

(ii) The gas volumetric flow rate
shall be determined using Method 2,
2A, 2C, or 2D of 40 CFR part 60, appen-
dix A, as appropriate.

(iii) To determine the inlet and out-
let total organic HAP concentrations,
the owner or operator shall use Method
18 or Method 25A of 40 CFR part 60, appen-
dix A. Alternatively, any other
method or data that has been validated
according to the applicable procedures
in Method 301, 40 CFR part 63, appendix
A may be used. The minimum sampling
time for each run shall be in accord-
ance with paragraph (b)(1) of this sec-
tion, during which either an integrated
sample or grab samples shall be taken.
If grab sampling is used, then the sam-
ple shall be taken at approximately
equal intervals during the run, with
the time between samples no greater
than 15 minutes.

(iv) The mass rate of total organic
HAP shall be computed using Equa-
tions 27 and 28.

\[
E_i, E_o = \text{Mass rate of total organic HAP at the inlet and outlet of the control or recovery device, respectively, dry basis, kg per hour (kg/hr).}
\]

\[
M_{ij}, M_{oj} = \text{Molecular weight of sample component j of the gas stream at the inlet and outlet of the control or recovery device, respectively, gm/gm-mole.}
\]

\[
Q_i, Q_o = \text{Flow rate of gas stream at the inlet and outlet of the control or recovery device, respectively, dry standard m}^3/\text{min.}
\]

\[
K_2 = \text{Constant, } 2.494 \times 10^{-6} \text{ (ppmv) }^{-1} \text{ (gm-mole/scm) } (kg/gm) \text{ (min/hr), where standard temperature is 20 °C.}
\]

(v) Inlet and outlet organic HAP
emissions for the run shall be cal-
culated by multiplying the mass rate
total inlet and outlet emissions deter-
mined in accordance with paragraph
(b)(5)(iv) of this section by the duration
of the run (in hours).

(6) If a back-end process vent stream
is introduced with the combustion air,
or as a secondary fuel into a boiler or
process heater with a design capacity
less than 44 megawatts, the inlet and
outlet emissions shall be determined in
accordance with paragraphs (b)(6)(i)
through (b)(6)(iv) of this section.

(i) The inlet organic HAP emissions
for the back-end process unit operation
shall be determined in accordance with
paragraph (b)(5) of this section.

(ii) The owner or operator shall also
measure total organic HAP (or TOC,
minus methane and ethane) emissions
in all process vent streams and pri-
mary and secondary fuels introduced
into the boiler or process heater, using
the procedures in paragraph (b)(5) of
this section, with the exceptions noted
in paragraphs (b)(6)(ii)(A) through
(b)(6)(ii)(C) of this section.

(A) Selection of the location of the
inlet sampling sites shall ensure the
measurement of total organic HAP
concentrations in all process vent
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streams and primary and secondary fuels introduced into the boiler or process heater.

(B) Paragraph (b)(5)(iii) of this section is applicable, except that TOC (minus methane and ethane) may be measured instead of total organic HAP.

(C) The mass rates shall be calculated in accordance with paragraph (b)(5)(iv) of this section, except that $C_j$ at the inlet and outlet of the control device shall be the sum of all total organic HAP (or TOC, minus methane and ethane) concentrations for all process vent streams and primary and secondary fuels introduced into the boiler or process heater.

(ii) The control efficiency of the boiler or process heater shall be calculated using Equation 29.

where:

\[ R = \text{Control efficiency of boiler or process heater, percent.} \]

\[ E_{\text{inlet}} = \text{Mass rate of total organic HAP or TOC (minus methane and ethane) for all process vent streams and primary and secondary fuels at the inlet to the boiler or process heater, kg organic HAP/hr or kg TOC/hr.} \]

\[ E_{\text{outlet}} = \text{Mass rate of total organic HAP or TOC (minus methane and ethane) for all process vent streams and primary and secondary fuels at the outlet to the boiler or process heater, kg organic HAP/hr or kg TOC/hr.} \]

(iii) The outlet total organic HAP emissions associated with the back-end process unit operation shall be calculated using Equation 30, as shown in paragraph (b)(8) of this section.

(7) An owner or operator is not required to conduct a source test to determine the outlet organic HAP emissions if any control device specified in paragraphs (b)(7)(i) through (b)(7)(vi) of this section is used. For these devices, the inlet emissions associated with the back-end process unit operation shall be determined in accordance with paragraph (b)(5) of this section, and the outlet emissions shall be calculated using the equation in paragraph (b)(8) of this section.

(i) A flare. The owner or operator shall demonstrate compliance as provided in §63.504(c).

(ii) A boiler or process heater with a design heat input capacity of 44 megawatts or greater.

(iii) A boiler or process heater into which the process vent stream is introduced with the primary fuel or is used as the primary fuel.

(iv) A control device for which a performance test was conducted for determining compliance with a regulation promulgated by the EPA and the test was conducted using the same Methods specified in this section and either no deliberate process changes have been made since the test, or the owner or operator can demonstrate that the results of the performance test, with or without adjustments, reliably demonstrate compliance despite process changes.

(v) A boiler or process heater burning hazardous waste for which the owner or operator:

(A) Has been issued a final permit under 40 CFR part 270 and complies with the requirements of 40 CFR part 266, subpart H, or

(B) Has certified compliance with the interim status requirements of 40 CFR part 266, subpart H.

(vi) A hazardous waste incinerator for which the owner or operator has been issued a final permit under 40 CFR Part 270 and complies with the requirements of 40 CFR part 264, subpart O, or has certified compliance with the interim status requirements of 40 CFR part 265, subpart O.
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(8) If one of the control devices listed in paragraph (b)(6) or (b)(7) of this section is used, the outlet emissions shall be calculated using Equation 30.

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where:

\[ E_o = \text{Mass rate of total organic HAP at the outlet of the control or recovery device, dry basis, kg/hr.} \]

\[ E_i = \text{Mass rate of total organic HAP at the inlet of the control or recovery device, dry basis, kg/hr, determined using the procedures in paragraph (b)(5)(iv) of this section.} \]

\[ R = \text{Control efficiency of control device, as specified in paragraph (b)(8)(i), (ii), or (iii) of this section.} \]

(i) If a back-end process vent stream is introduced with the combustion air, or as a secondary fuel into a boiler or process heater with a design capacity less than 44 megawatts, the control efficiency of the boiler or process heater shall be determined using the procedures in paragraph (b)(6)(iii) of this section.

(ii) If a back-end process vent is controlled using a control device specified in paragraph (b)(7)(i), (ii), (iii), or (v) of this section, the control device efficiency shall be assumed to be 98 percent.

(iii) If a back-end process vent is controlled using a control device specified in paragraph (b)(7)(iv) of this section, the control device efficiency shall be the efficiency determined in the previous performance test.

(c) Compliance shall be determined using the procedures in this paragraph.

(1) For each test run, the residual organic HAP content, adjusted for the control or recovery device emission reduction, shall be calculated using Equation 31.

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Where:

\[ \text{HAPCONT}_{run} = \text{Residual organic HAP content, kg organic HAP per kg elastomer (latex or dry crumb rubber).} \]

\[ C = \text{Total uncontrolled organic HAP content, determined in accordance with paragraph (b)(3) of this section, kg organic HAP per kg latex or dry crumb rubber.} \]

\[ P = \text{Weight of latex or dry crumb rubber processed during test run.} \]

\[ E_{i,run} = \text{Mass rate of total organic HAP at the inlet of the control or recovery device, dry basis, kg per test run.} \]

\[ E_{o,run} = \text{Mass rate of total organic HAP at the outlet of the control or recovery device, dry basis, kg per test run.} \]

(2) A facility is in compliance if the average of the organic HAP contents calculated for all three test runs is below the residual organic HAP limitations in §63.494(a)(1) through (3).

(d) An owner or operator complying with the residual organic HAP limitations in §63.494(a)(1) through (3) using a control or recovery device, shall re-determine the compliance status through the requirements described in paragraph (b) of this section whenever process changes are made. The owner or operator shall report the results of the re-determination in accordance with §63.499(d). For the purposes of this section, a process change is any action that would reasonably be expected to impair the performance of the control or recovery device. For the purposes of this section, the production of an elastomer with a residual organic HAP content greater than the residual organic HAP content of the elastomer used in the compliance demonstration constitutes a process change, unless the overall effect of the change is to reduce organic HAP emissions from the source as a whole. Other examples of process changes may include changes in production capacity or production rate, or removal or addition of equipment. For the purposes of this paragraph, process changes do not include: Process upsets; unintentional, temporary process changes; or changes
§ 63.497 Back-end process provisions—
monitoring provisions for control
and recovery devices used to comply
with residual organic HAP
limitations.

(a) An owner or operator complying
with the residual organic HAP limita-
tions in § 63.494(a)(1) through (3) using
control or recovery devices, or a com-
bination of stripping and control or
recovery devices, shall install the moni-
toring equipment specified in para-
graphs (a)(1) through (6) of this section,
as appropriate.

(i) Where an incinerator is used, a
temperature monitoring device
equipped with a continuous recorder is
required.

(ii) Where a catalytic incinerator
is used, the temperature monitoring
device shall be installed in the gas
stream immediately before and after
the catalyst bed.

(ii) Where a flare is used, a device (in-
cluding, but not limited to, a thermo-
couple, ultra-violet beam sensor, or in-
frared sensor) capable of continuously
detecting the presence of a pilot flame
is required.

(3) Where a boiler or process heater of
less than 44 megawatts design heat
input capacity is used, a temperature
monitoring device in the firebox
equipped with a continuous recorder is
required. Any boiler or process heater
in which all vent streams are intro-
duced with primary fuel or are used as
the primary fuel is exempt from this
requirement.

(4) For an absorber, a scrubbing liq-
uid temperature monitoring device and
a specific gravity monitoring device
are required, each equipped with a con-
tinuous recorder.

(5) For a condenser, a condenser exit
(product side) temperature monitoring
device equipped with a continuous re-
corder is required.

(6) For a carbon adsorber, an inte-
grating regeneration steam flow, nitro-
gen flow, or pressure monitoring device
having an accuracy of at least ±10
percent of the flow rate, level, or pressure,
capable of recording the total regen-
eration steam flow or nitrogen flow, or
pressure (gauge or absolute) for each
regeneration cycle; and a carbon bed
temperature monitoring device, capa-
bles of recording the carbon bed tem-
perature after each regeneration and
within 15 minutes of completing any
cooling cycle are required.

(b) An owner or operator may request
approval to monitor parameters other
than those required by paragraph (a) of
this section. The request shall be sub-
mitted according to the procedures
specified in §63.506(f) or (g). Approval
shall be requested if the owner or oper-
ator:

(1) Uses a control or recovery device
other than those listed in paragraph (a)
of this section; or

(2) Uses one of the control or recov-
ery devices listed in paragraph (a) of
this section, but seeks to monitor a pa-
rameter other than those specified in
paragraph (a) of this section.

(c) The owner or operator shall estab-
lish a level, defined as either a max-
imum or minimum operating param-
ter, that indicates proper operation of
the control or recovery device for each
parameter monitored under paragraphs
(a)(1) through (a)(6) of this section.
This level is determined in accordance
with §63.505. The established level,
along with supporting documentation,
shall be submitted in the Notifica-
tion of Compliance Status or the operat-
ing permit application, as required in
§63.506(e)(5) or (e)(8), respectively. The
owner or operator shall operate control
and recovery devices so that the daily
average value is above or below the es-
tablished level, as required, to ensure
continued compliance with the stand-
ard, except as otherwise stated in this
subpart.

(d) The owner or operator of an af-
fected source with a controlled back-
end process vent using a vent system
that contains bypass lines that could
divert a vent stream away from the