

Minimum number of traverse points for particulate traverses.

Notes:

Test was performed \_\_\_\_\_

21 Apr 2014 at 1700 \_\_\_\_\_

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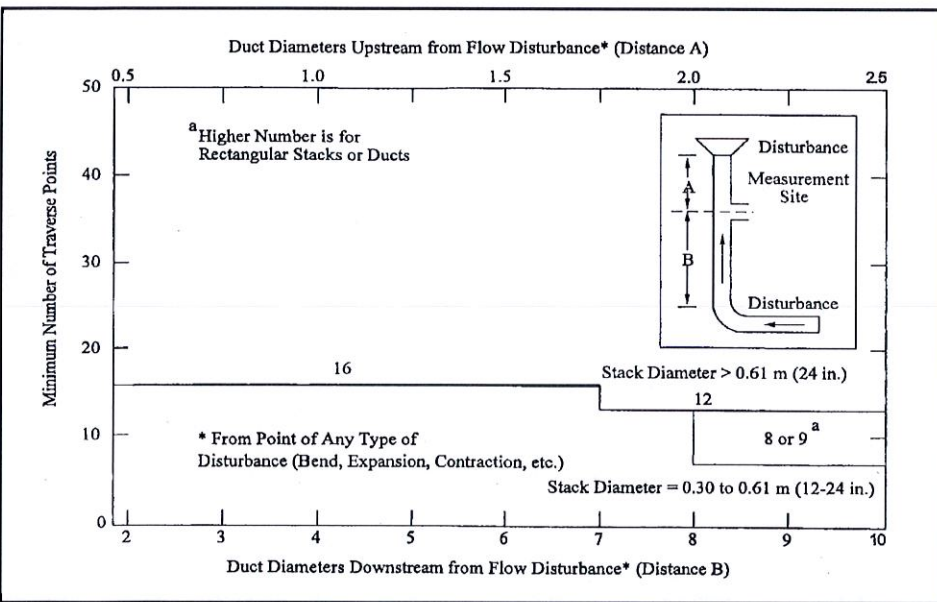
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Stack Diameter 29 in.

\*Diameters upstream (A) 6.0

\*Diameters Downstream (B) 11.7

\*For rectangular ducts, an equivalent diameter is:  $De = 2(L)(W)/(L + W)$



Minimum number of traverse points for velocity (nonparticulate) traverses.

Note: If any question is answered NO then read the CFR to determine whether the test is acceptable.

Were the correct number of traverse points selected corresponding to the duct diameters upstream and downstream from disturbances? (11.2)

Yes

If the measurement locations were < 2 diameters downstream or < .5 diameter upstream from a disturbance, was the alternative site selection procedure used? (11.5)

N/A

If devices such as cyclones and inertial demisters following venturi scrubbers, or tangential inlets or other duct configurations which tend to induce swirling are present, was the absence of cyclonic flow determined? (11.4)

Yes

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**Method 2 - Stack Gas Velocity and Volumetric Flow Rate**

Facility/Unit: Stericycle Inc / Biological Incinerator

Date: 22-Apr-14

Time: 0855

Operation Rate: ~1900 lbs/hr

**Note: If any question is answered NO then read the CFR to determine whether the test is acceptable.**

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**Setup:**

Were the inclined manometers level and zeroed? (8.2)	Yes
Was a Type S Pitot tube used? (6.1 and 10.2)	Yes
Did the Type S Pitot tube and assembly appear to be configured properly and in acceptable physical condition? (10.1)	Yes
What is the pitot tube coefficient, $C_{p(s)}$ ? (10.01, 12.4.1)	0.84

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**Testing:**

Was a post-test leak check conducted after each traverse run? (mandatory) (8.3)	Yes
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Note: Answering **YES** to any of the following 4 questions indicates a more sensitive differential pressure gauge must be used: (6.2)

Was the average of all $\Delta P$ readings < .05 inches H <sub>2</sub> O?	No
If there were > 11 traverses, were > 10% of the individual $\Delta P$ readings < .05 inches H <sub>2</sub> O?	No
If there were < 12 traverses, was more than 1 $\Delta P$ reading < .05 inches H <sub>2</sub> O?	No
The Sensitivity Factor for the Differential Pressure Gauge (T) may be used as an alternative to the above 3 questions. If used, was T > 1.05? (6.2.1)	No

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**Analysis:**

Was Method 3 used for the determination of stack gas dry molecular weight? (8.6) (Can use a dry molecular weight of 29.0 for processes emitting essentially air.) (8.6)	No
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**Notes:**

Method 3A was used for the determination of stack gas dry molecular weight.

This method was performed continuously through the stack test.

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**Method 3A**      **Facility/Unit**      Stericycle inc / Biological Incinerator  
 Run: 1      Date/time: 22-Apr-14  
 Response time: \_\_\_\_\_  
 Monitor Span: Continuously

**Process Information:**

Operating Rate (with units): ~1900 lbs/hr

**Interferences:**

Conduct an interference response test of the analyzer prior to it's initial use in the field and if the gas detector type is changed. Follow procedure in Section 5.4 of Method 20.

If done, was total interference < or equal to 2% of the applicable span? Yes

**Reagents and Standards:**

Were all calibration gases certified < or equal to +/- 2% of the tag value or Protocol 1? Yes  
 Were all calibration gases current? Yes  
 Was the zero gas < 0.25% of span (alternatively < 10% of span)? Yes  
 Was the Mid Range gas 40 - 60% of span? Yes  
 Was the Hig Range gas 80 - 100% of span? Yes  
 Was the stack pollutant concentration always below the span value during the test? Yes  
 Was the average measured O2 concentration > 20% of the span? Yes

**Quality Control:**

Was the Calibration error for each gas < +/- 2% of span? Yes  
 Was the system bias < +/- 5% of span for the zero and upscale cal. gas? Yes  
 Was the bias gas the closer of either the Mid or High Range gas to the stack conc? Yes  
 Was the zero drift < 3% of span over the period of each run? Yes  
 Was the Calibration drift (using the Mid Range gas) < 3% of span for each run? Yes  
 If failed a bias check, was the previous run invalidated? And  
 was a calibration error check and a sampling system bias check repeated? N/A  
 When only O2 is measured, were duplicate Orsats or Fyrites done for CO2? No  
 When only CO2 is measured, were duplicate Orsats or Fyrites of CO2 within 0.5% of  
 the average measured CO2 concentration for one of the runs? No  
 Were the O2 and CO2 data validated as per Section 4.4 of Method 3? N/A

**Analytical Procedure:**

Was the sampling rate constant (within +/-10%)? Yes  
 Was emissions data only taken after twice the response time? Yes  
 Were NO adjustments(except sample flow)made to the analyzer between drift tests? Yes  
 Were the measurements bias adjusted? Yes

Note: If any question is answered NO then read the CFR to determine whether the test is acceptable.

**Notes:**

This method was performed continuously through the stack test.

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**Method 4 - Moisture Content**

Facility/Unit: Stericycle Inc / Biological Incinerator

Date: 22-Apr-14

Time: 0855

Operation Rate: ~1900 lbs/hr

**Note: If any question is answered NO then read the CFR to determine whether the test is acceptable.**

**Interferences:**

When gas streams are saturated or contain water droplets, a second determination of moisture content must be made simultaneously with the RM. (4.1)

If the above condition is true, was the moisture percentage determined using a psychrometric chart or saturation vapor pressure tables. (4.1) Yes

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**Procedure:**

At least 8 traverses must be used for circular stacks with diameter < 24 inches.

At least 9 traverses must be used for rectangular stacks with equivalent diameters < 24 inches.

At least 12 traverses in all other cases.

Were the proper number of traverses used? (8.1.1.1)	Yes
Was the sampling time such that a minimum gas volume of 21 scf were collected at a rate no greater than .75 cfm? (8.1.1.2)	Yes
Note: If method 4 carried out independent of isokinetic method a sampling rate within 10% of constant rate must be maintained.	
If independent Method 4, was constant sampling rate maintained ( $\pm 10\%$ )? (8.1.4)	N/A
Was a temperature of < 20 °Fdegrees maintained at the silica gel outlet? (8.1.4.1)	Yes
Was a post sampling leak check of the sampling train conducted? (mandatory) (8.1.4.2)	Yes
Was the leak rate $\leq 4\%$ of the average sampling rate or $\leq .2\text{cfm}$ ? (8.1.4.2)	Yes

**Analysis:**

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**Notes:**

This method was performed continuously through the stack test.

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**Method 5 - Determination of Particulate Matter Emissions**

Facility/Unit: Stericycle Inc / Biological Incinerator Date: 22-Apr-14 Time: 1000

**Process Information:**

Operating Rate (with units): ~1900 lbs/hr

**Train Setup:**

Does the nozzle appear to be in acceptable condition?	Yes
Nozzle size: <u>0.34</u>	
Was the nozzle calibrated? (10.1)	Yes
Was the probe nozzle glass or stainless steel? (6.1.1.1)	Yes
Note: Either borosilicate or quartz glass probe liners may be used for stack temperatures up to 900 °F(480°C). Quartz glass liners must be used for temperatures between 900 and 1650 °F (480° and 900°C). (6.1.1.2)	
Was the proper probe liner used for the stack temperature?	Glass Yes
Dry Gas Meter Coefficient:	Y = <u>1.0094</u> (10.3.3,16.1.1.4)
Impinger 1 contents:	<u>                    </u> ml or <u>                    </u> mg (8.3.1)
Impinger 2 contents:	<u>                    </u> ml or <u>                    </u> mg (8.3.1)
Impinger 3 contents:	<u>                    </u> ml or <u>                    </u> mg (8.3.1)
Impinger 4 contents:	<u>                    </u> ml or <u>                    </u> mg (8.3.1)
Extra Impingers? Explain:	<u>See Method 29</u>

**Testing:**

Barometric Pressure: <u>29.79</u>	
Were the sampling times at each point of equal duration and ≥ 2 minutes? (8.2.4, 8.25)	Yes
Was the temperature around the filter maintained at 120 ± 14°C(248 ± 25°F)? (8.5, 6.1.1.7)	Yes
Was an acceptable Method 5 data sheet used to record necessary values and was the data recorded at the beginning and end of each time increment, flow changes, etc.? (8.5.1)	Yes
Was the impinger outlet temperature kept below 68°F (20°C)? (8.5.6)	Yes
Was the manometer periodically leveled and zeroed? (8.5.6)	Yes
Was a post-test leak check conducted after every run? (mandatory)(8.4.4)	Yes
Were all leakage rates ≤ 4% of the average sampling rate or ≤ .02 cfm (.00057 m³)? (8.4.4)	Yes
Note: Pitot lines must also pass leak check as described in Method 2, Section 8.1, in order to validate velocity head data.	
Was the sampling rate within ± 10% isokinetic? (8.5, 8.6)	Yes

**Recovery:**

Was an acetone blank prepared? (8.7.5)	Yes
*Note: Glass probes should be brushed at least 3 times, metal at least 6.	
Was a probe brush used to properly clean the probe nozzle, fittings, and liner with an acetone rinse until no visible particles could be seen in the rinse? (8.7.6.2)	Yes
Was the inside of the front half of the filter holder cleaned with brush and acetone? (8.7.6.2.5)	Yes
Was the sample recovered without spills or losses?	Yes

**Note:** If any question is answered NO then read the CFR to determine whether the test is acceptable.

**Notes:**

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**Method 7E**Run: 1

Response time:

Monitor Span:

Facility/Unit: Stericycle Inc / Biological IncineratorDate/time: 22-Apr-14Continuously**Process Information:**Operating Rate (with units): ~1900 lbs/hr**Interferences:**

Conduct an interference response test of the analyzer prior to its initial use in the field in accordance with Section 5.4 of Method 20. Also perform the interference response test if the detector is changed.

Is the total interference less than or equal to 2% of the applicable span? Yes

**Reagents and Standards:**

Were all calibration gases certified to within +/- 2% of the tag value or Protocol 1? Yes

Were all calibration gases current? Yes

Was the zero gas < 0.25% of span? Yes

Was the Mid Range gas 40 - 60% of span? Yes

Was the High Range gas 80 - 100% of span? Yes

**Quality Control:**

Was the Calibration error for each gas < +/- 2% of span? Yes

Was the system bias < +/- 5% of span for each cal. gas? Yes

Was the bias gas the closer of either the Mid or High Range gas to the stack conc? Yes

Was a converter efficiency test done or data showing < 5% of the exhaust is NO<sub>2</sub>? Yes

Did NO<sub>x</sub> ppm decrease by 2% or less of peak ppm in 30 mins from converter eff. Test? Yes

Was the zero drift < +/-3% of span over the period of each run? Yes

Was the Calibration drift (using the Mid Range gas) < +/-3% of span for each run? Yes

Were interference tests or converter efficiency tests done prior to a compliance test? Yes

**Equipment and Supplies:**

Was a chemiluminescent type analyzer used? Yes

Were all lines heated and insulated up to the water knock out? Yes

**Analytical Procedure:**

Was the sampling rate constant (within +/-10%)? Yes

Was emissions data only taken after twice the response time? Yes

Were NO adjustments (except sample flow) made to the analyzer between drift tests? Yes

Note: If any question is answered NO then read the CFR to determine whether the test is acceptable.

**Notes:**

Inspector's name: Omar Horta, John Kasper, Assefa Hailemariam

**Method 23**

Stack Test Observation Checklist

Facility: Stericycle Inc / Biological Incinerator

Unit: 1

Run: 1

Date: 22-Apr-14 Time: 0855

**CHANGE TO METHOD:** Separate analysis of the toluene rinse extract specified at section 5.1.6 of method 23 is not required. Instead the toluene rinse concentrate may be added to the acetone and methylene chloride concentrate, the filter and the XAD-2 resin to the Soxhlet apparatus specified at section 5.1.4 prior to analysis.

**Interferences:**

No sealing greases may be used in assembling the sample train.  
All train openings where sample contamination can occur must be covered with teflon tape or aluminum foil that was prepared with a hexane rinse.  
Sample gas temperature must be maintained below 68 degrees F at entry to adsorbent trap. The XAD-2 resin must never exceed the decomposition temp of 122 F during preconditioning.  
Adsorbent trap must be covered/wrapped at all times.

**Reagents and Standards:**

Adsorbent resin is Amberlite XAD-2? Yes

**Quality Control:**

Was temperature information available (see diagram) and within specs? Yes

Were data sheets complete? Yes

Did the post-test leak check pass? Yes

Will audit samples be analyzed? No

**Equipment and Supplies:**

Was the meter box level? Yes

Was the manometer zeroed? Yes

Were the impingers iced down? Yes

**Analytical Procedure: Dioxin/Furan Sampling**

Were samples recovered on site? Yes

Was the box temperature at 248 +/- 25 degree F? Yes

Was the leak check < or = .02 cfm? Yes

Was the adsorbent resin temperature below 122 degree F? Yes

**Process Information / Notes:**

Post-test leak check: 0.005, 17" Hg

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**Method 29**

Stack Test Observation Checklist

Facility: Stericycle Inc / Biological Incinerator

Unit: 1

Run: 1

Date: 22-Apr-14 Time: 1000

**Note:**  
 Isokinetic sampling similar to EPA 5 with P.M. collected in front half and gaseous emissions collected in impinger solutions.  
 Extensive recovery procedures with minimum of 13 containers for analysis.  
 It is important to know the exact volume of solution used during recovery in this method for blank correction purposes.

**Sample Train:**

Is sample train constructed entirely of glass and Teflon and without the use of sealant greases?

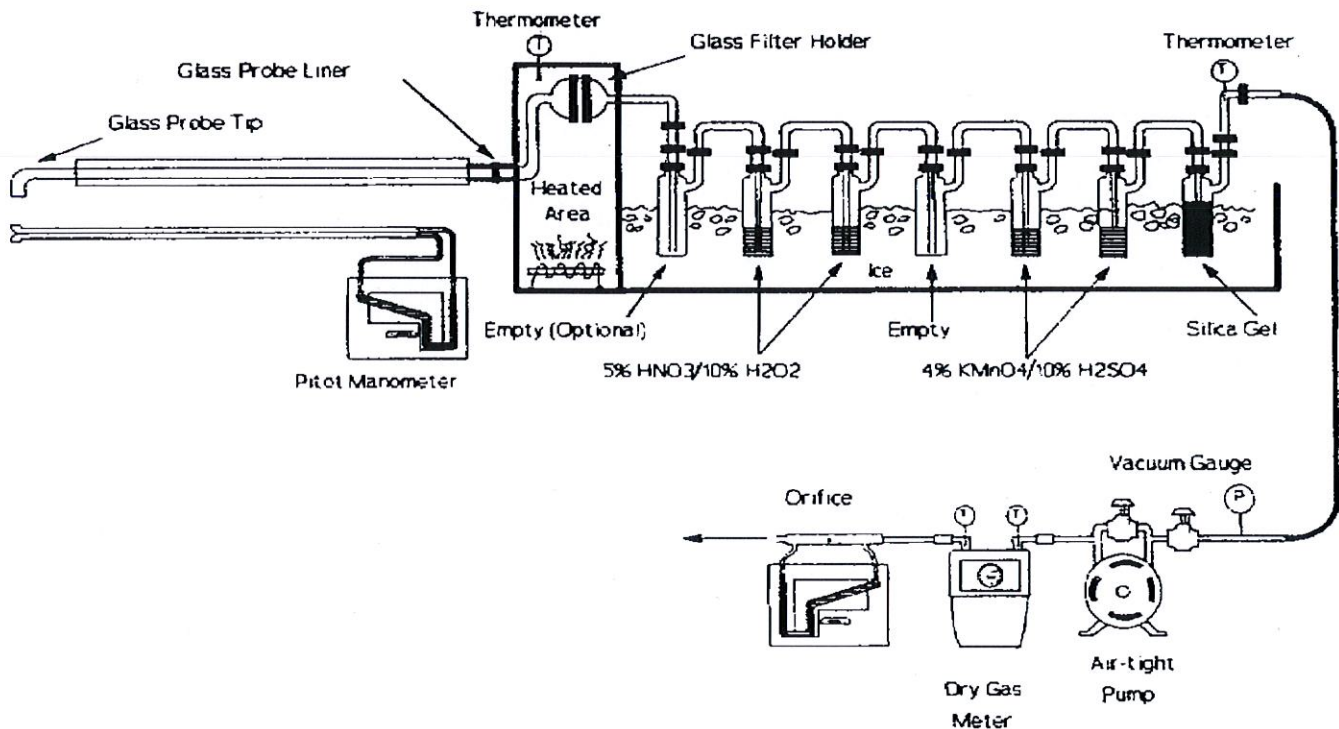
Yes

Were the impingers filled as followed?

Yes

#1	Empty (optional)	#5	100 ml KMNO4
#2	100ml HNO3/H2O2	#6	100 ml KMNO4
#3	100ml HNO3/H2O2	#7	Silica Gel
#4	Empty		

**Process Information / Notes:**



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