

SPECIATION TRAPS



simplifying Hg

If you need to know your proportion of Oxidized to Elemental Hg, then speciation traps are the solution.

These 5 section traps allow you to separate the Hg into the two species. Give us a call for more details.

- 2 types of sorbent allow you to separately capture oxidized and elemental Hg.
- Made with Extra durable thick glass for rugged field use.
- Our Speciation traps come standard for moisture resistance.
- Data has shown a bias with Acid Gases and the capture of oxidized Hg so our Speciation Traps have Acid Gas Scrubbers built in.
- We can spike with elemental and oxidized Hg.
- Used in “Wet” and “Dry” stacks as well as high particulate sources.
- We will always consult you on how best to conduct your testing for the most optimal and accurate results.
- Extensively Field Tested!

MODIFIED METHOD 30B FOR SPECIATION DATA

Currently there is no method specific to Speciation Traps but Method 30B is a great option. When followed, the results are reliable, accurate, and very informative. This is the best way to tell if your CEMMs are working properly and to evaluate control technologies.



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Sampling tips:

FGD INLET/AFTER ESP, SCR, NSCR, or “DRY” STACK LOCATION:

Traps should be sampled directly in the stack and not externally.

TEMPERATURE: The recommended trap temperature range for Speciation traps is between 220°F and 300°F. A cooling probe is only needed if you experience breakthroughs after 30 minutes of sampling (high SO₂ >1000ppm and/or SO₃ > 30ppm concentration) or if the flue gas temperature exceeds 350°F.

FLOW RATE: The recommended flow rate for Speciation traps is between 200cc/min and 250cc/min.

SAMPLE VOLUME: The recommended sample volume is about 20L (depending on the source concentration.) This will provide sufficient mercury capture that can be easily distinguished from background levels and make analysis easy to perform.

STARTING PUMPS: The standard leak check procedure should be done and documented. The sampling pumps should be started before the probe is inserted into the duct. This is extremely important if there is positive pressure at the sample location or if you are using a mass flow controller to control the flow as it will prevent initial direct particulate entrainment on the front plug.

SHROUD: A shroud of 6 to 12 inches in length **MUST** be used to prevent particulate from entering the trap during the test run. Please use thin aluminum (available as roofing material in Home Depot) and a clamp to hold it to the end of the probe.

WET STACK LOCATION (AFTER FGD):

Traps should be sampled directly in the stack and not externally.

TEMPERATURE: The 4-8 inches before the first section on the trap must be heated inside of the probe to at least 230°F and must not exceed 300°F. This will ensure that any moisture remains in the vapor phase as it passes through the trap. It is also important to make sure the probe is fully heated before it is inserted into the stack.

FLOW RATE: The recommended flow rate is between 200cc/min and 250cc/min.

SAMPLE VOLUME: The recommended sample volume is about 20L (depending on the source concentration.) This will provide sufficient mercury capture that can be easily distinguished from background levels and make analysis easy to perform.

STARTING PUMPS: The pump should be started before the probe is inserted into the stack.

SHROUD: A shroud of 6 to 12 inches in length **MUST** be used to prevent direct moisture entrainment during test run.

FOR ANALYSIS GUIDANCE, PLEASE REFER TO THE OHIO LUMEX SPECIATION TRAPS ANALYTICAL SOP.

Additional Notes:

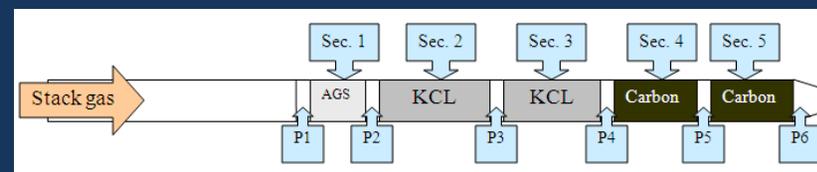
For inlet or dry stack locations, the shroud used must be made from a material that will not be affected by the high temperatures of the flue gas (as described above). The shroud used in a wet stack location can be made out of plastic tube or metal.

The distribution of oxidized mercury over the AGS and KCl sections is dependent upon many factors, but it is important to know that the plugs will capture oxidized mercury. The bond that is created between these sections and the oxidized mercury is a very weak physical bond and too much temperature or flow will cause these bonds to fail and result in breakthrough.

For both locations the front plug must have minimum amount of particulate or discoloration from white color.

Please note: Large amount of particulate or moisture on the front plug will skew the Total and speciation ratio and make the run invalid.

We have found that the aforementioned sampling procedures will yield the most consistent and reproducible results.



Speciation Trap Sections listed in direction from stack gas entry:

1. Acid Gas Scrubber (AGS)
2. Oxidized Mercury Analytical Bed
3. Oxidized Mercury Breakthrough Bed
4. Elemental Mercury Analytical Bed
5. Elemental Mercury Breakthrough Bed
6. P1, P2, P3, P4, P5, P6 (Plugs in order)