



06-014A

20 November, 2006

NOX CONVERTER CLEANING PROCEDURE

- I. PURPOSE:**
To provide guidance on cleaning the "green goo" from 1/8 inch tubing of the internal NO₂ to NO converters used in the NOX analyzers. This symptom is seen in CEMS applications only.
- II. TOOLS:**
7/16 inch wrench
½ inch wrench
9/16 inch wrench
Flat blade screwdriver
Phillips screwdriver
- III. PARTS:**
Small plastic bag
Twist-tie or rubber band
Fresh tap water
De-ionized or distilled water



The electronics used in T-API analyzers are sensitive to Electrostatic Discharge (ESD). When working on any T-API device, please ensure that you are properly grounded prior to handling or touching any electronic circuitry in the analyzers! For more information on how to protect sensitive components from ESD during handling, please contact T-API customer service and ask for the ESD Service note number 03-022A.

WARNING

It has been determined that "plugging" of the mini hicon or molycon converter is typically related to the process being sampled. The "green goo" appears to be due to water carryover from the sample conditioner.

If your mini hicon or molycon converter does plug up, there is a problem with your sample conditioner/system. You should investigate the improvement of your sample preparation regarding water and particulate removal. As always, we are here to assist in determining the cause, but can not cover this failure under warranty.

If the following procedure fails or in the event of repeated failures, you can:

1. Purchase a new mini hicon or molycon converter.
2. If your application warrants, you can purchase a 501 external converter. (The 501 is a superior thermal oxidizer to the mini hicon or molycon converter, and it can convert up to 250 ppm of NO₂ at >85% efficiency. The 501 has a large 3/8 inch stainless steel tube which can be economically changed in the field.)

IV. PROCEDURE:

1. Disconnect the analyzer from its line power source.
2. Wait until the internal mini hicon or molycon converter assembly is cool to the touch (2 hours or more).
3. Remove the top cover from the analyzer.
4. Locate the internal mini hicon or molycon converter assembly.
5. Remove the top cover from the mini hicon or molycon converter assembly.
6. Locate the converter element and heater assembly.
7. Unplug and remove the heater assembly from the converter element.
8. Unplug the thermocouple from its connector (for A-Series analyzers, the connector is located on the Temp/Status board; for E-Series analyzers, the connector is on the Relay board).
9. Cover the thermal couple plug with a small plastic bag and secure it with a twist-tie or rubber band.
10. Disconnect the inlet and outlet gas lines of the converter element at the two 1/8 inch S/S unions.
11. Remove the converter element.
12. Inspect the 1/8 inch S/S tubing of the inlet and outlet gas lines which connect to the converter element for any "green goo".
13. Remove any tubing that shows signs of any "green goo".
14. Flush the tubing of the converter element and any other tubing with fresh tap water until all evidence of the "green goo" is gone.
15. Then flush the converter element tubing and any other tubing with DI or distilled water for several minutes.
16. Using dried compressed air or N₂, blow through the converter element and any other tubing that needed cleaning for at least 30 minutes.
17. Re-install any tubing that was removed for cleaning.
18. Re-install the heater assembly in the converter element.

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19. Remove the small plastic bag from the thermal couple connector.
20. Reconnect the 1/8 inch S/S tubing of the converter element to the 1/8 inch S/S unions of the inlet and outlet gas lines.
21. Reconnect the heater connector to the analyzer.
22. Reconnect the thermal couple to its respective circuit board (A series – Status Temp board; E series – Relay board).
23. Replace the top cover to the mini hicon or molycon converter assembly.
24. Reconnect the analyzer to the line power source.
25. Leak check and flow check the analyzer.
26. Replace the top cover of the analyzer.
27. Operate the analyzer for at least 2 hours off line, but with the vacuum pump connected and running.
28. Check the calibration and recalibrate if necessary.

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