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<b>WBEA – Standard Operating Procedure</b>			
<b>SOP Title</b>		Regulator Purge Procedure	
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## Introduction and Background

This procedure is intended to describe the steps to properly purge a stainless steel regulator with calibration gas. This method can be used for any calibration gas.

## Principle of the Method

The reason to purge a regulator with calibration gas is to “condition” the regulator with the gas being used to calibrate with. If the regulator is not properly purged, the response observed on the analyzer being calibrated could be lower than it should be and the response will take a considerable amount of time to stabilize.

The conditioning process takes place by allowing the compound of interest to occupy the available “sites” on the wetted surface inside the regulator. Once all these sites are occupied, the calibration gas is allowed to pass through the regulator with out removal.

## Measurement Range and Sensitivity

This method applies for all ranges and sensitivities.

## Equipment and Apparatus

The following items are required to properly purge a regulator:

- Calibration gas cylinder
- Stainless steel regulator with the correct CGA fitting for the gas being used
- Large crescent wrench
- Lengths of ¼” Teflon or plastic tubing, 6 feet at minimum
- Vacuum pump, Thomas 107 is acceptable
- Any fittings necessary to make connections from the regulator to the pump

## Interferences

Not applicable

## Precision and Accuracy

Not applicable

## Site Requirements

Inside a station, near the calibrator to be used

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## Installation Requirements

Not applicable

## Procedure

Follow the steps described below to complete a proper regulator purge

1. Secure the cylinder using proper cylinder restraint inside the station or the lab
2. Remove the cap and attach the regulator using the crescent wrench keeping the main cylinder valve closed, and the shutoff valve of the regulator open
3. Attach the ¼" line from the regulator output and the vacuum side of the pump
4. Attach the second piece of tubing to the pressure side of the pump and vent outside
5. Turn on the pump, and allow the pump to evacuate the regulator for one to two minutes
6. Close the shutoff valve on the regulator and turn off the pump
7. Disconnect the line from the pump and exhaust outside
8. Open the main cylinder valve slowly and allow the regulator to pressurize
9. The output pressure should be set to approximately 40 psi.
10. Close the main cylinder valve
11. Slowly open the shutoff valve and allow the calibration gas to vent outside. Close the shutoff valve again before the pressure reaches zero
12. Repeat steps 8 to 11 about 10 times

The regulator should now be conditioned properly and ready to begin a calibration.

The reason the pump is used in this procedure is to evacuate the interior of the regulator of all the air it previously contained. This is done to remove any possibility of Oxygen getting back into the cylinder during the purging process. Oxygen in the cylinder will begin a process where the target compound will likely react with the oxygen over time and change the concentration in the cylinder.

## Operational and Maintenance Requirements

Not applicable

## Calibration Requirement

Not applicable

## Data Collection and Management

Not applicable