

## Water Heater Coil Dripping/Condensation

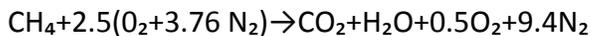
Water heater condensation is often mistaken for a coil leak. When water heaters are running, condensation may occur depending on temperature and humidity levels. It is not uncommon that customers are concerned when they see water dripping from their heater, and they often assume it is due to a leak in the coil.

### What is water heater condensation?

Water, (H<sub>2</sub>O) in the form of a vapor, is one of the products of combustion. When this water vapor in the flue gases comes in contact with the cold coil pipe, the water vapor cools, condensing into water droplets.

Combustion Formulas (all formulas are with 25% excess air).

1. Methane (use for Natural Gas with 25% excess air):



2. Propane:



3. Diesel:



### Why will I see more condensation when cold water is flowing through the coil?

Shortly after startup, when cold water has filled the coil and the burner is on, the heater may produce condensation. Damp or cool weather can also affect the amount of condensation.

When recirculating to a storage tank that is being heated, condensation will decrease as the temperature of the tank water entering the heater increases. Also, after extended heater operation as the heater gets warmer, condensation usually evaporates rather than drips out, reducing or eliminating the dripping problem.

### How to determine if my coil is leaking or if it is normal condensation?

- A. To pressure test the coil (centrifugal pumps only):

1. Turn the heater off.
2. Fully close the valve on the discharge of the heater.
3. Turn on the pump, fully close the valve on the suction of the pump and immediately turn the pump off. ***This entire step must be completed in less than 1 minute to avoid damaging the pump!***

4. Read the pressure gauges on the coil inlet and outlet and document the pressure of each.
  5. Wait ten minutes.
  6. If the pressure readings on the inlet and outlet of the coil are unchanged, then your coil is not leaking; what you are seeing is condensation.
- B. If your heater was built before 1995 and your installation does not have the valves needed to conduct a pressure test, test your coil in the following manner:
1. Turn the pump on.
  2. Circulate the water through the coil without running the burner.
  3. The amount of water dripping from the coil should decrease significantly. There may be a small amount of water present due to sweating of the coil if the air is humid and the water in the coil is cool, similar to that on exposed water pipes in a building.
  4. If the amount of water increases significantly when the burner is again fired, and decreases shortly after the burner is again turned off, the water is from condensation of moisture in the combustion gases, not from a leaking coil.

All Sioux water heater coils are ASME approved and pressure tested at 240 psi, which is 160% of operating pressure of 150 psi. ASME requires that all welds be made by ASME certified welders, and all coils be individually inspected by an outside agency (Hartford Boiler) to ensure ASME quality standards are met. Therefore, the likelihood of a leak is minimal. Any dripping is almost always due to condensation

If you believe that your coil is leaking, call Sioux Corporation at 888-763-8833. DO NOT attempt to weld the coil or have an outside company weld on the coil. If you do so without an ASME "R" stamp, your warranty will be void.