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## Heartburn Solutions: Condensate Neutralizers

When the flue gas temperature drops below 130°F inside the flue pipe, it starts to condense. The condensation from the flue gas produces an acidic solution containing concentrations of nitric, nitrous, sulfuric, and sulfurous and hydrochloric acids. These acids can become more concentrated by repeated condensing and have the potential to harm the drain pipe, the sewer system and the environment. Damage caused by untreated condensate can be seen in these pictures. Damage can occur underground and in unseen remote locations.



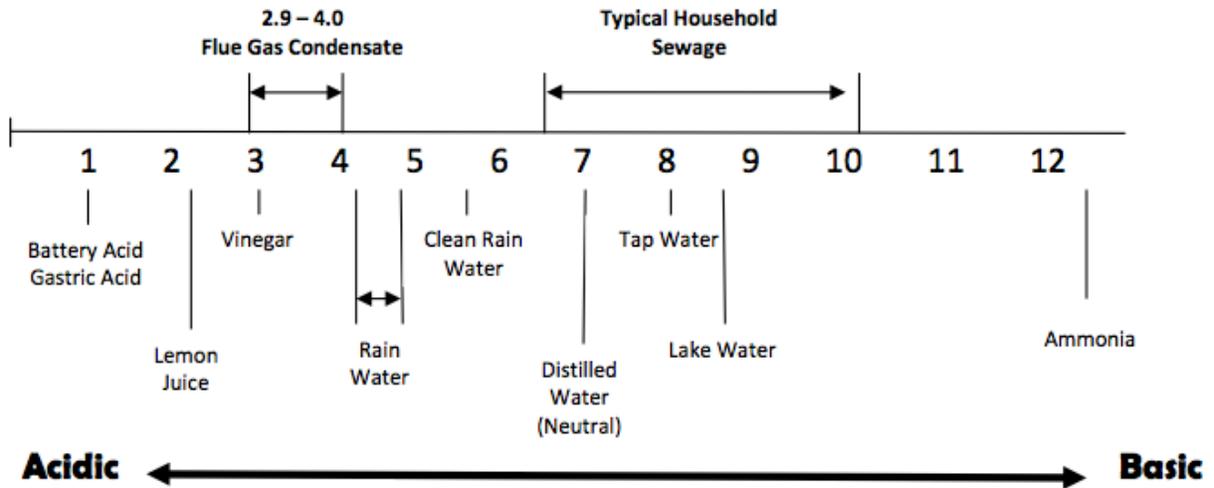
The acidic level of the condensate is measured in pH on a scale from 0 to 14. Most condensate will have a pH between 2.9 and 4 (according to the actual chemical makeup of the fuel that is being burned) with 7 being neutral. This scale is not linear; each step below 7 is 10 times more acidic than the next higher number. Treated condensate should be as close to neutral as possible with 5 being the minimum.

Most national and state codes prohibit the discharge of acidic liquid into a drainage system without treating it to raise its pH. The easiest way to accomplish this is by treating the liquid using a condensate neutralizer.

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Condensate neutralizers are ideal for neutralizing condensate from SKG gas humidifiers operating on natural gas or propane.

Treatment of condensate is accomplished by exposing the liquid to a media containing calcium carbonate, which is found in the shells of fossilized snails, shellfish, and coral. The most common form of media used in a condensate neutralizer is limestone due to the predominance of calcium carbonate in its composition. The calcium carbonate in the media changes the solution into water, CO<sub>2</sub> and various salts which collect in the bottom of the tank or tube. Over time the media dissolves and must be replenished.



References:

<http://www.emersonswan.com/index.php>

<http://aerco.com/>

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