

**Tradename:** AC Blue'Nette Toner

**Code:** 21027

**CAS #:** 999999-99-4 & 68333-16-4 (or) 92128-79-5 & 90082-41-0

**Test Request Form #:** 9450

**Lot:** N220627A

**Sponsor:** *Active Concepts, LLC; 107 Technology Drive Lincolnton, NC 28092*

**Study Director:** *Daniel Shill*

**Principal Investigator:** *Hannah Stade*

**Test Performed:**

Humidity Protection Analysis

**Introduction**

A bio-film's action as a scaffolding rather than a true barrier means it can support and protect hair. This scaffolding allows small molecules and hydrogen ions in via its semi-permeable facade. It is this scaffolding and its semi-permeable membrane that promotes the exhibition of properties such as moisturization, pH balance, barrier protection, and additionally, protection from hair weakening after exposure to thermal processes. We can see the actions of these bio-films through humidity protection resulting in smoother and well maintained hair tresses with less frizz.

Accordingly, a Humidity Protection Analysis was performed to qualitatively assess the humidity protection capabilities of **AC Blue'Nette Toner** on hair.

**Assay Principle**

Human hair tresses were tested to understand the protective capability of a cosmetic product. Tress images are obtained after testing material application and after exposure to humidity. After treatment, qualitative analysis of images was conducted.

**Materials**

- |                                  |   |
|----------------------------------|---|
| <b>A. Hair Samples:</b>          | Human Virgin Brunette Hair Tresses                        |
| <b>B. Incubation Conditions:</b> | Average 28°C; Average 93% Relative Humidity               |
| <b>C. Equipment:</b>             | HOBO Onset temp/RH logger; Canon EOS Rebel Digital Camera |

## Methods

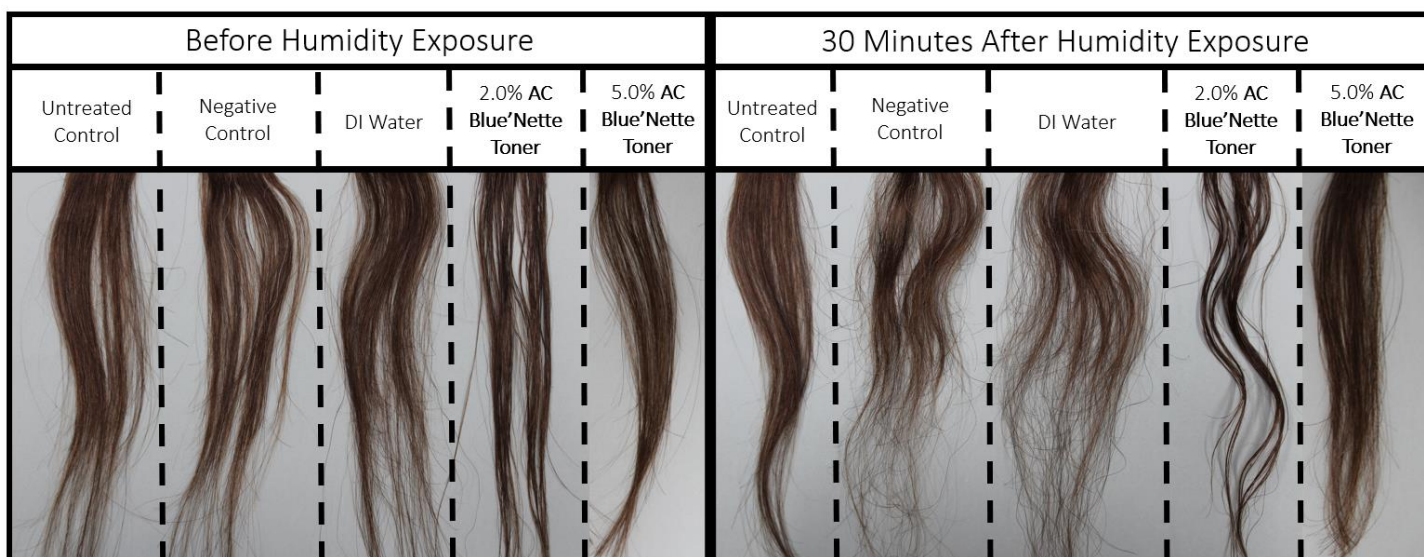
Five virgin brunette hair swatches were collected and treated with DI Water, 2.0% **AC Blue'Nette Toner**, 5.0% **AC Blue'Nette Toner**, or left as a Negative Control. An Untreated Control was left untreated and was not subjected to humidity. Each hair tress was evenly soaked in its designated treatment and blown dry. Initial images were taken after treatment and drying. The hair tresses were then fastened to the lid of the humidity chamber, allowing a natural hanging position and space in between each tress. A 2000 mL beaker of boiling water was placed into the chamber and the lid secured creating a closed, controlled environment. The temperature and humidity were monitored for the duration of the exposure. Final images were taken after 30 minutes of humidity exposure.

**Table 1.** Descriptions of the Conditions and Treatments

Condition	Treatment Description
Untreated Control	No Treatment, No Humidity
Negative Control	No Treatment, Humidity
DI Water	Water Soak, Humidity
2.0% <b>AC Blue'Nette Toner</b>	2.0% <b>AC Blue'Nette Toner</b> in Water Soak, Humidity
5.0% <b>AC Blue'Nette Toner</b>	5.0% <b>AC Blue'Nette Toner</b> in Water Soak, Humidity

## Results

The data obtained from this study met criteria for a valid assay and the Untreated and Negative Controls performed as anticipated. Compared to the Negative Control, the tress treated with DI Water had a similar appearance and did not reduce frizz. The tresses treated with 2.0% and 5.0% **AC Blue'Nette Toner** provided hair humidity protection and reduced development of frizz compared to the Negative Control and hair treated with DI Water.



**Figure 1.** Before and 30 Minutes After Humidity Exposure in Virgin Brunette Hair Tresses

## Discussion

A qualitative study was performed to determine the humidity protecting ability of **AC Blue'Nette Toner** in hair tresses.

As shown in Figure 1, both the brunette Negative Control and DI Water tresses were extremely frizzy after humidity exposure compared to the Untreated Control. Conversely, 2.0% and 5.0% **AC Blue'Nette Toner** protected the virgin brunette hair and the tresses appeared smooth and shiny compared to the Negative Control and DI Water. This data indicates **AC Blue'Nette Toner** exerts augmented humidity protection with virgin brunette hair compared to water alone.

Taken together, these results indicate **AC Blue'Nette Toner** reduces the volume and frizz produced by humidity when added to personal care applications at recommended use levels. Collectively, **AC Blue'Nette Toner** smooths and protects virgin brunette hair reducing the visual consequences of humidity exposure.