

## EFFECT OF CITY POLLUTION AND ITS CLEANSING TREATMENTS ON HAIR

Ernesta Malinauskyte, TRI Princeton  
 emalinauskyte@triprinceton.org  
 Alison Robinson, TRI Princeton  
 Arya Esrafiy, TRI Princeton  
 Paul Cornwell, TRI Princeton

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With the increasing pollution in urban areas, so has the demand for anti-pollution hair care products. Hair care manufacturers are introducing formularies to fight particulate matter pollution by prevention and treatment/cleansing. The claims are often written in the product descriptions on the webpage, and not boldly displayed on the container. This opens the door for claims substantiation testing. This paper will outline the TRI Princeton test protocol designed to study the effect of city air-borne pollutants on hair and their resultant effects on quality of hair.

A refined selection of commercially available hair pollution cleaning systems has been examined. They consisted of shampoo as basic treatment, and shampoo, conditioner and leave-in as an advanced treatment method. Tested anti-pollution systems were distinguishable by particle repulsion, by cleansing properties, or both. The treated hair was polluted in the TRI Chamber and then cleaned again up to ten times to evaluate (a) the pollution levels and (b) the cleansing efficacies. Effectiveness of different hair treatments were demonstrated by means of color, dry combing and scanning electron microscopy (SEM). The role of hair sebum and oxidative hair damage was also evaluated along with the treatments.

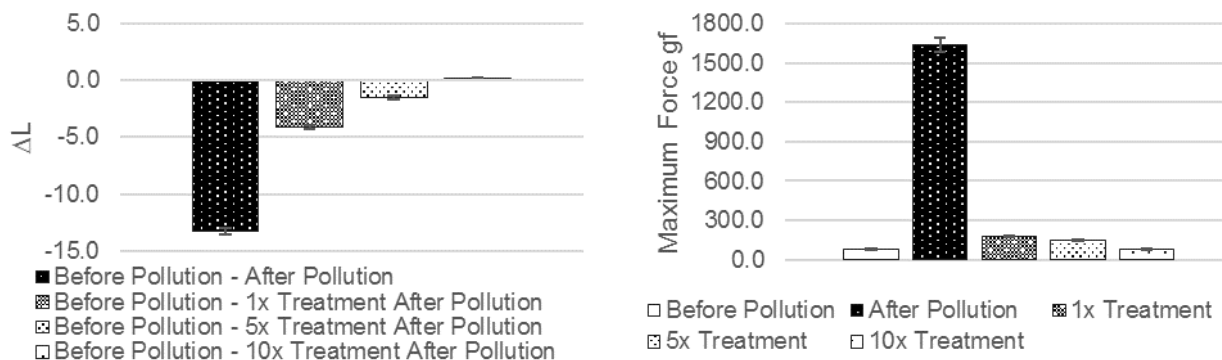


Figure 1 – Hair color lightness ( $\Delta L$ ) and dry combing force using one of anti-pollution treatments on PM polluted hair