Thomson Research Associates Inc. maintains well-equipped microbiology and chemistry laboratories in Toronto. We place great emphasis on technical service for our customers.

**In our laboratories Thomson Research Associates Inc. can:**

- Prove the efficacy of the Ultra-Fresh treatments
- Provide quality control testing for Ultra-Fresh users

All of the microbiological tests run in the TRA laboratories use standard international test methods approved by organizations such as ASTM and AATCC. We also perform a range of tests developed by various governments and major international corporations.

Microbiological tests may be qualitative or quantitative. Qualitative methods are very useful as rapid screening tests while quantitative testing provides a more precise and sensitive measure of the degree of protection. Some types of antimicrobials require the use of the more sensitive quantitative methods.

Fungal tests are generally qualitative. They rely on visual inspection (assisted by microscopy) to determine if there is any fungal growth present. An example is shown to the right (AATCC Method 30).

For bacterial testing, qualitative methods also use visual determination (as in AATCC Method 147 shown to the right). Quantitative methods require a count of surviving bacteria. This involves placing a known quantity of bacteria on a treated sample and on an untreated sample. After a period of incubation, the number of bacteria remaining on both samples are counted and compared (JISL1902/ISO20743).

Real world testing has shown that good results in qualitative or quantitative antibacterial tests correlate well with the reduction of perspiration odors in apparel.

Chemical tests are also performed at TRA. These can be used to analyze any treated article to determine the amount of Ultra-Fresh present.

The reverse side of this sheet lists some of the available test methods.
Some of the microbiological test methods used in the TRA laboratories

A) American Association of Textile Chemists and Colorists (AATCC)

B) American Society for Testing Materials (ASTM)
1. D4300-01(2008) = Ability of adhesive films to support or resist the growth of fungi.
2. E1428-99(2009) = Evaluating the performance of antimicrobials in or on polymeric solids against staining by Streptovercillium reticulum (a pink stain organism).

C) National Standard of Canada - Textile Test Method. (Can/CGBS 4.2-M91)
1. Method 28.1 = Fungus damage test - pure culture.

D) Federal Test Method Std 191

E) International Standard (ISO)

F) Miscellaneous
2. Bacterial identification.
7. Minimum Inhibitory Concentrations (MIC).
11. U.S. Military Standard 810G - Method 508.6 - Fungal chamber test
12. Viable counts of bacteria and fungi.