Anderson Cooper Show
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Introduction:

360° Product Testing has been retained to document the hygienic state of two supplied pairs of A.P.C New Standard Classique Jeans. One of the supplied jeans was labeled "Clean," the other, "Dirty", hereinafter referred to as "Clean" and "Used."

Procedure and Measurement:

A calibrated Hygiena SystemSURE II luminometer and new *Ultrasnap ATP Swabs* were used to determine the relative hygiene or sanitary condition of the two APC jeans pants. The Hygiena system determines whether surfaces are thoroughly clean through ATP (Adenosine Triphosphate) bioluminescence. This method has widespread acceptance in the US food industry.

All organic matter (living or once-living) contains ATP, including food, bacteria, mold and other microorganisms. The detection of ATP on a surface therefore indicates the presence of biological matter that may not otherwise be visible to the eye.[1]

As shown at the top left of figure 1, the manufacturer suggested swab area is roughly 4" by 4". By swabbing of such a size, there exists a good chance of detecting contaminants if present. However, on the front of the tested jeans, 360° Product Testing limited the swabbing area to the metal rivets and buttons, thus, the sampling area on the front of the jeans was roughly ½ by ½ ". With this far smaller sampling area on the front of the jeans, the expected Relative Light Units (RLU) counts is markedly less than that typical of a 4" by 4" swabbed area.

This swabbing distinction is pertinent to the results that follow because the RLU readings on the front of the jeans <u>should</u> be very low, as the swabbed area is very small.

More detail is given under the **Findings** section as to interpreting RLU counts; however, it is worth noting that any reading greater than 0 RLUs represents contamination.

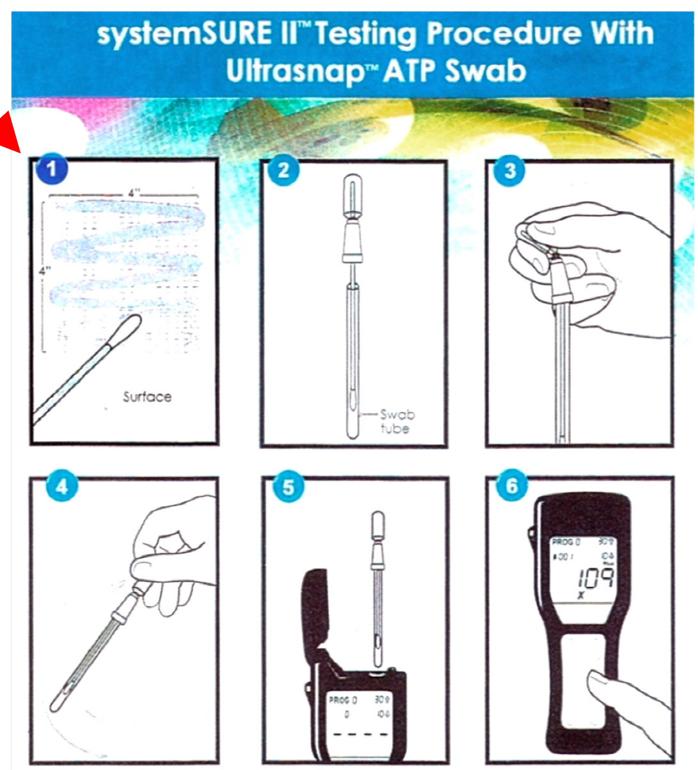


Figure 1 : Sampling Area Manual Guide

[1] Hygiena SystemSURE II A Guide to Rapid ATP Monitoring, p. 4

Test procedure:

1.) Put on exam gloves

2.) Lay out jeans on 24” x 48” NSF Stainless Steel Prep Table and clamped to table

3.) Carefully place colored labels with samples numbers at jeans locations to be swabbed (yellow “clean,” orange, “used”)

4.) Remove swabs from lab refrigeration storage

5.) Calibrate reader

6.) Swab marked areas of the jeans with an identically labeled swab

   i. Break reagent ampule and mixing swab to prepare for reading
   ii. Insert swab in reader
   iii. Copy sample location and reading into spreadsheet

7.) Plot readings on a chart

Figure 2: Sampling Locations - Front

360° Product Testing marked and swabbed 5 frontal areas buttons and/or studs on both the clean and used jeans. Areas #1 and #2 had multiple sites; all the rivets on the wearer’s right side (location #1), and the top button and all the rivets on the wearer’s left side (location #2).

Additionally, on the used jeans, five areas of denim were swabbed on the back side as shown in figure #3.

Figure 3: Back Sampling Locations (Used)

Findings:
According to the, "*SystemSURE II™ & Ultrasnap Threshold Chart*":[2]

"When using the threshold setting provided by Hygiena for the SystemSURE II, readings less than 10 RLUs indicates that the surface is considered clean. Readings between 11 - 29 RLUs indicates a warning that the surface is not adequately clean. If the reading is greater than 30 RLUs, the surface is considered dirty."

Note that the above RLU cleanliness references anticipate a 4" x 4" swab area, not the much smaller areas sampled as earlier discussed.

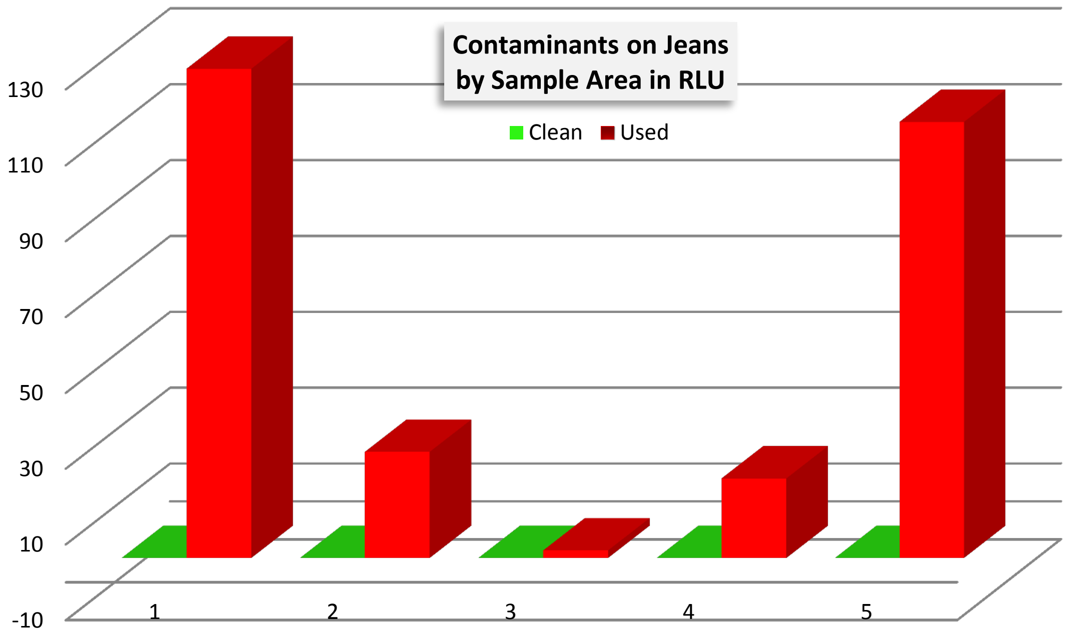


Figure 4 : Test Result for Germs on Jeans

(Unit: RLU)	Sample Location				
	#1	#2	#3	#4	#5
Clean	**0**	**0**	**0**	**0**	**0**
Meter ID:	262	263	264	265	266
Meter Classification					
Used	**129**	**28**	**2**	**21**	**115**
Meter ID:	267	268	269	270	271
Meter Classification	X	!		!	X

Table 1 : Front Rivet & Button Test Results

[2] http://www.hygiena.net/l-de/resources-thresholds.html

(Unit: RLU)	Sample Location				
	#6	#7	#8	#9	#10
Used	**21**	**41**	**55**	**32**	**45**
Meter ID:	272	273	274	275	276
Meter Classification	!	X	X	X	X

Table 2: Rear Denim Test Results (only used pants tested)

The Hygiena meter shows meter's sample ID#, the measured RLUs, and a classification of each result. On the meter's classification:

- (<10) is considered clean.
- " ! " (11-29) indicates a warning that the surface is not adequately clean.
- "X" (30) means the surface is considered dirty.

Swabs Captures Under Microscopy

360° further evaluated contaminants captured on the Ultrasnap ATP swabs used with the Hygiena luminometer.

Prior to their use, the swabs were labeled to correspond with the collection spot to be swabbed. After reading the swabs in the luminometer, 360° Product Testing used the swab collection area to prepare a set of slides for microscopic analysis. Show in Figure 5 are the two swabs analyzed:

- CL-2, measured 0 RLU (CL-2 is Clean Jeans sample #2), and
- U-1, measured 129 RLU (U-1 is Used Jeans sample #1.

Slides prepared from a single swipe of the swabs were examined under a digital imaging microscope at three magnifications: 40x, 100x, and 400x. At 400x the magnification is sufficient to see bacteria or even a cell's core.

The comparative microscopic results of the two jeans' swabs are seen on the following page, Table 3.

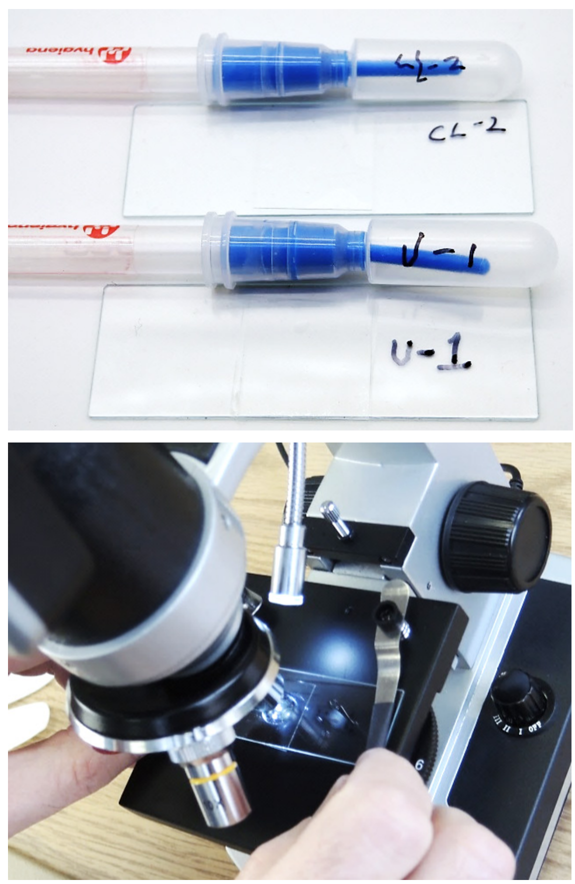


Figure 5: Microscopic exam of swab captures

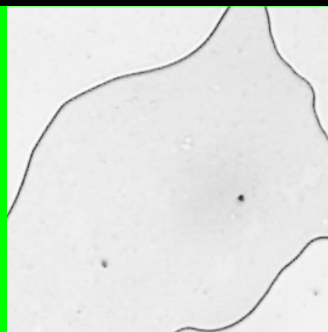
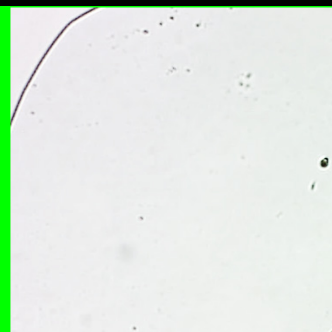
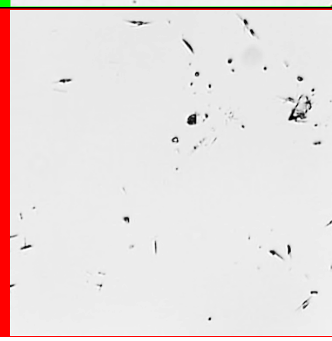
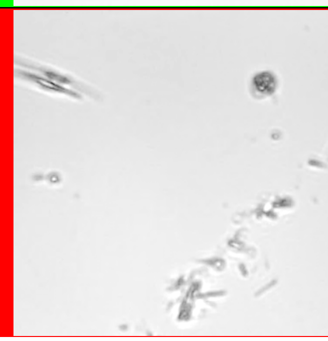
Sample ID	40X	100X	400X
CL-2 (0 RLU)			
U-1 (129 RLU)			

Table 3: Microscopic images of Clean Jeans sample Cl-2 vs. Used Jeans sample U-1

The CL-2 sample (0 RLU) in 40X magnification shows two small objects (the large irregular shape is the sample's fluid margin). However, the U-1 sample (129 RLU) shows a large population of objects. As the magnification is increased, the objects in U-1 become more identifiable biological contaminants.

Conclusions:

All of the front side of the "clean" jeans sample points had 0 RLU (clean) readings.

The "used" jeans had two of five samples over 100 RLU.

- Two of the remaining three sample points had notable contaminants marked by the reader's warning symbol display, "!".
- The last remaining sample point (one of the front buttons) had nominal contamination. That outlier button may have been recently wiped in transit, handling, or by the wearer.

On the back side of the "used" jeans, the 5 sample points had average of 38.8 RLU, and all but one over 30 (sample #6 at 21 RLU). Greater than 30 RLU is considered dirty by the reader's display and the manufacturer's documentation.

Microscopic examination of swabs' collections only revealed identifiable biological contaminants on the used jean pair.