

Pouch Noise:

Researching Attitudes and Actual Sound Levels

T. Nichols, MS, MBA and M. Layton, MS
Hollister Incorporated, Libertyville, Illinois USA

Summary

Recognising that people with ostomies face challenges that go well beyond physical concerns, Hollister Incorporated conducted studies on pouch noise. Research was conducted to address questions in three areas:

- Is pouch noise of concern to people with ostomies and, if so, is there a possible connection with social isolation?
- Do ostomates view the QuietWear pouch material as a way to help resolve their concerns about pouch noise?
- In an objective, science-based study of competing pouches, is there a difference in measurable sound levels?

Importance of Pouch Noise to People with Ostomies

How important is the issue of pouch noise, and what is its impact on the life of the person who has undergone ostomy surgery? Pouch noise is defined as “the rustling or crinkling noise that pouches make when the wearer bends or moves.”

In 2009, 127 ostomates were asked if pouch noise causes them concern. Thirty-nine percent of the respondents stated that it was a problem. Their comments ranged from “*it was something of a concern,*” to “*I have always considered pouch noise to be an aggravation.*” Many responses reflect self-consciousness about pouch noise as suggested by these comments: “*I wondered if other people could detect it,*” or “*people would look at me funny, I could hear people talking about me when they heard the crinkling sound of the bag.*”

In 2008, Hollister Incorporated asked 78 ostomates how important it was for them to use a pouch made from quiet material. All those responding answered that quiet material was “important” or “very important” to them because they believed that pouch noise will cause other people to notice they are wearing a pouch. In other words, pouch noise can compromise the need for discretion sought by those using ostomy pouching systems.

What evidence is there of this? Between 2004 and 2007, the Hollister Ostomy Comprehensive Health and Life Assessment was distributed to 1,452 North American ostomates. The majority responded that they worry about pouch noise “occasionally” or “more often.” In fact, 18 percent stated they “always” worry about pouch noise. When the assessment was distributed to 1,264 ostomates in the United Kingdom in 2008, researchers found similar results.

Approximately 63 percent of North American ostomates and 61 percent of the UK ostomates say that they “occasionally” or “more often” worry about pouch noise. In fact, 18 percent and 16 percent respectively said they “always” worry about pouch noise.



Attention to Detail. Attention to Life.

While noticeability is usually associated with visibility, these studies show that noticeability is also associated with the audio aspect of the pouch – that is, a “rustle of plastic” as one ostomate stated. Approximately 53 percent of North American ostomates and 58 percent of UK ostomates “occasionally” or “more often” worry about this issue, with 16 percent and 22 percent respectively “always” worrying about it.

Worry about pouch noise is closely connected with worry about pouch noticeability. When these two factors were correlated statistically, a positive correlation was found. As the worry about pouch noise increases, there is an additional worry that someone will notice they are wearing a pouch. Ultimately, this connection affects quality of life issues, especially the possibility of increased social isolation.

When the issue of pouch noise is associated with the quality of life issues of social isolation,³ the following statistically significant results are found.

Table 1. Pouch noise associated with quality of life issues.

	North America	United Kingdom
<i>Feeling alone and friendless</i>	$r=0.19, p<0.001$	$r=0.24, p<0.001$
<i>The inability to relate to others</i>	$r=0.27, p<0.001$	$r=0.25, p<0.001$
<i>Feeling isolated from others</i>	$r=0.23, p<0.001$	$r=0.24, p<0.001$
<i>Feeling separate from others</i>	$r=0.28, p<0.001$	$r=0.28, p<0.001$

These correlations are statistically significant, although the correlation is relatively modest. As worry about pouch noise increases, there is an associated increase in social isolation responses. Similar findings were obtained for the issue of pouch noticeability.

Perceptions of QuietWear Pouch Material

Hollister Incorporated recently developed QuietWear pouch material to address these issues. How effective is it? In other words, does the pouch with QuietWear material effectively satisfy these issues?

A sample of people with ostomies in the US who had tried the QuietWear material were asked about their level of satisfaction with the pouch. The following responses were given.

Table 2. After wearing this pouch, how satisfied are you that this pouch meets this objective (providing the quietest pouch available today)?

	N	Percent
Very satisfied	53	67.9
Somewhat satisfied	15	19.2
Neither satisfied or dissatisfied	6	7.7
Somewhat dissatisfied	2	2.6
Mostly dissatisfied	2	2.6

Approximately 87 percent of respondents expressed satisfaction that the QuietWear material provides the quietest pouch available today. That is, 87 percent said they were “very satisfied” or “satisfied.” In addition, approximately 64 percent of US respondents said that if a pouch provides them with the quiet they want and need, it would be the reason to choose the pouch.

With respondents' perceptions measured and positive results, Hollister Incorporated turned to a third type of study, one that would objectively measure the amount of pouch noise associated with QuietWear material and other available pouches.

Testing Audible Sound

To examine the sound-dampening property that makes QuietWear material unique, the study was based on the level of hertz, a unit of frequency, also known as pitch.

The range of audible sound for the human ear is found between 20 hertz and 20,000 hertz. Experts agree that humans hear best at a range between 1,000 hertz and 5,000 hertz, and best hearing quality occurs at about 3,500 hertz.^{1,2} Since hearing ability at higher frequencies diminishes as age increases, and since the ostomy population is typically older, higher frequencies may not be audible at all to some ostomates. While audible sound over the entire frequency range is a concern, the study focused on the range that is most sensitive to the human ear.

Hollister Incorporated contracted an independent laboratory to conduct a series of sound level tests on QuietWear pouch material. Tests were conducted by Riverbank Acoustical Laboratories, a unit of Alion Science and Technology, in Geneva, Illinois USA. Specifically, Riverbank was asked to compare the QuietWear pouch material with current competitive products that are considered to be similar in nature*. Pouches tested were Hollister pouches with QuietWear material and the equivalent competitive products: Coloplast and ConvaTec. The testing was performed under Hollister Protocol 4507-O: Pouch Noise Evaluation/Comparison of Ostomy Products.

The results of the testing were favourable to QuietWear material. Hollister pouches with QuietWear material are shown by the red line in Figures 1 and 2. In all pouch type configurations, QuietWear material demonstrated a significantly lower sound level as compared with that of its competitors.

Figure 1.

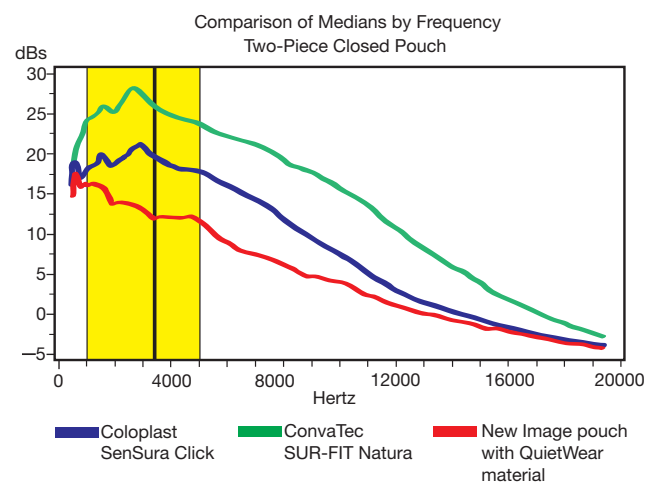
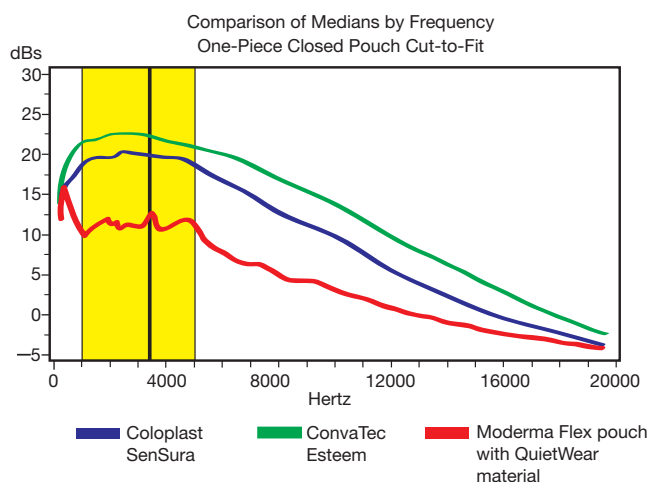


Figure 2.



In the area of greatest sensitivity, that is, approximately 3,500 hertz (represented by vertical black line), the reduction in decibel levels indicates that the pouch with QuietWear material, for this configuration, tested to be considerably quieter than its competitors.

* The test method used is ISO 3741:1999, Acoustics-Determination of Sound Power Levels of Noise Sources Using Sound Pressure-Precision Methods for Reverberation Rooms: Section 8.4.2; Method of determination using a reference sound source of known sound power level (comparison method).

Conclusions

Based on three areas of research — ostomates' attitudes toward pouch noise, perceptions of actual noise, and measurable scientific noise levels — results demonstrate the ability of QuietWear pouch material to address the pouch noise concerns of ostomates. Specifically, research shows that:

- The majority of ostomates in North America and the UK worry about pouch noise and that their pouch is being noticed by others. Pouch noise is an important issue; ostomates worry about it because it compromises pouch discretion, which can, in turn, subtly affect quality of life issues.
- In a recent study, people who tested QuietWear material expressed satisfaction (“very satisfied” or “satisfied”) that QuietWear material provides the quietest pouch available today.
- Finally, objective laboratory testing demonstrates a reduced noise level for Hollister pouches with QuietWear material when compared to competitors' similar pouches.

Based on all three measures, it can be concluded that QuietWear pouch material successfully reduces pouch noise for people with ostomies. This is good news for customers of Hollister, for whom discretion, dignity, and quality of life are valuable and necessary.

- 1) Smith SW. The Scientist and Engineers Guide to Digital Signal Processing. California Technical Publishing. 2006: Chapter 22, pp.3.
- 2) Gelfand SA. Hearing: An introduction to psychological and physiological acoustics: 2nd edition. Marcel Dekker, Inc., New York and Basel. 1990.
- 3) Hawthorne G. Measuring Social Isolation In Older Adults, Development and Initial Validation of The Friendship Scale. Soc Indic Res. 2006: 77, pp. 521-548.

For more information please call:

Australia 1800 335 911
New Zealand 0800 167 866

Hollister

Australia

6/345 Ingles Street
Port Melbourne
Victoria
3207

New Zealand

58 Richard Pearse Drive
Airport Oaks
Auckland
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www.hollister.com