

# New HACCP approved hair containment products solve hair complaints

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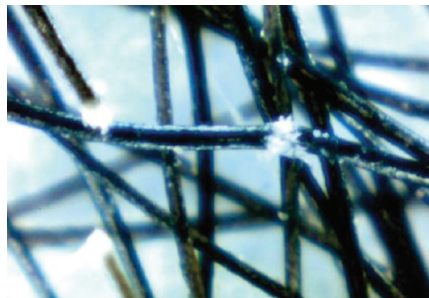
Why is hair the number one contaminate of food and a major consumer issue facing both manufacturers and the retail multiples when industry works so hard to control the use of hair coverings? The answer is that many products widely used in the food processing industry are made from unsuitable materials that are not fit for purpose.

HACCP International, the product certification body, recently evaluated a selection of hair coverings, from both products widely used in industry and those new to the market. Their results reveal some startling conclusions. The mob cap, widely used in industry, failed the HACCP International evaluation as a method of hair containment.

The results are interesting because they sit beside research undertaken by the University of Bolton, England and endorsements from the President of the Trichological Society 2014-16, Professor Barry Stevens, FTTS and the experience of industry.

Leading food processors have already achieved dramatic reductions and even zero hair complaints and fines over a sustained time period by using fit for purpose hair containment products which can reduce costs when compared to traditional products such as mob caps and traditional diamond shaped mesh hair nets.

Fig. 1 shows the HACCP International approved HairBarrier fabrics, such as that used in KleenCap, working to prevent hairs from passing through the fabric due to the



**Trichorrhexis Nodosa photo-micrograph x 50. The high-spots indicate the points of eventual severance (B. J. Stevens).**

triple technologies of positive attraction, anti-slip and light uniform recoil. KleenCap's StayCool property wicks moisture through the fabric to the atmosphere keeping workers cool and comfortable, reducing fidgeting which research shows pushes more hairs through ordinary fabrics (hair can be seen easily passing through large gaps in the nonwoven material of a mob cap, but hair is restricted by the KleenCap material with HairBarrier and StayCool technologies).

New KleenCap from Aburnet offers:

- HACCP certified.
- Approved by the President of the Trichological Society 2014-16, Professor Barry Stevens, FTTS.
- 4 x hair containment of a mob cap.
- 11 x hair containment when worn over a HairTite HiCare HygieNet.

Fig. 2 demonstrates the variable spacing and non-alignment of the spun fibres – present in all weights of nonwoven fabrics such as those used in mob caps, bouffant caps and beard covers.

According to Professor Subhash Anand MBE, Professor of Technical Textiles, Institute for Materials Research and Innovation, University of Bolton, England: "Nonwoven materials such as those used in mob and bouffant caps should not be used as a hair barrier fabric. Due to the nonwoven manufacturing methods of spinning the fibres, it is impossible to control the alignment and spacing of the fibres leading to variable fabric structure with inherent gaps and different densities, allowing hairs to protrude through. Due to the fabric's rigidity, it will neither hold the head of hair nor grip strands of hair that protrude through the fabric. It is a totally unsuitable material."

Hairs readily pass through standard woven, knitted and more specifically nonwoven materials due to the abrasion of hairs against the fabric, such as when scratching or turning the head. Short hair has been shown to protrude standard head coverings on average 2 x more than longer hair and is therefore a greater risk to food safety.

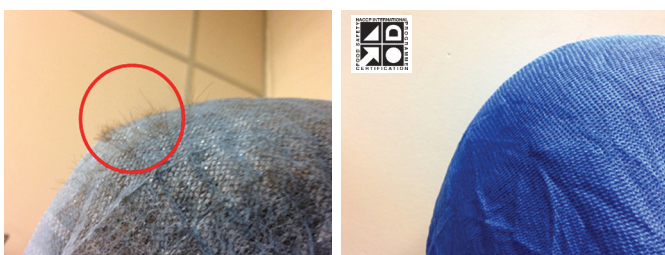
According to Professor Barry Stevens, hair contamination is caused by:

- Natural shedding. The average human sheds 40-130 hairs every day naturally at a constant rate.
- Modern styling practices such as higher temperature settings on hair driers, colouring, bleaching, relaxing and waving by heat or chemical processes. These practices cause the hair to blister and frequently break along the hair shaft leaving a shorter length of loose hair.

Effective hair containment products,

*Continued on page 20*

**Fig. 1. Left, a 12gsm mob cap which is not certified by HACCP International and right, KleenCap, which is certified.**



**Fig. 2. 500 x magnification of human hair against a mob cap, left, and KleenCap, right.**



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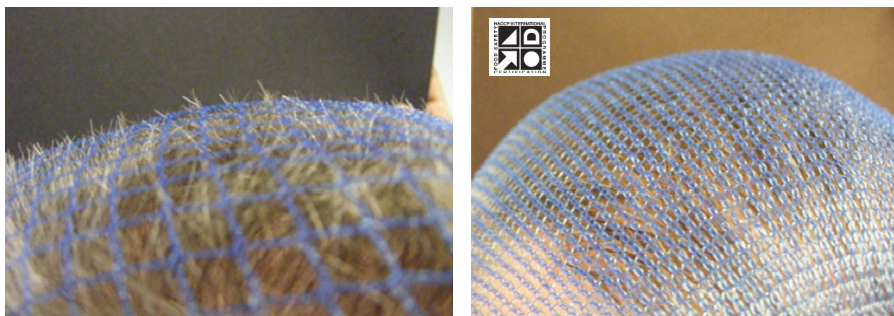
developed under the direction of Professor Anand, feature HairBarrier technology, which offers the following:

- Light hold recoiling structure – fits individual hair styles and head sizes.
- Positive attraction to the keratin protein found in hair – attracts shed and damaged hairs to help prevent contamination.
- Anti-slip centre – helps prevent shed and damaged hairs passing through the needle gaps in knitted/woven fabrics.

To help reduce fidgeting and abrasion it is important to keep workers cool and comfortable and therefore these products also incorporate StayCool Technology.

Like performance sportswear, micro channels smaller in diameter than the human hair, placed through the fabric transport moisture through the fabric to evaporate sweat to atmosphere helping regulate the wearers temperature to help keep them cool and comfortable.

Anti-microbial treatments, independently tested, applied to the whole product, are effective at prohibiting the multiplication of both Gram positive and Gram negative bacteria. They are >99.9% effective against E. coli, MRSA and fungi reducing the possibility of the food handler being a cross vector of pathogens found on the human scalp – making products like KleenCap more effective and viable for all day wear, further reducing costs.



**Fig. 3. Left, a traditional diamond-shaped mesh hairnet (5mm example pictured), which is not certified by HACCP International. Right, HairTite Hi-Care, which is certified by HACCP International.**

Leading food processors have used both HairTite HiCare HygieNets and KleenCaps to eliminate hair complaints – helping them to be awarded a Gold status from a key retail customer – one of only three sites in the UK to achieve such a high accolade.

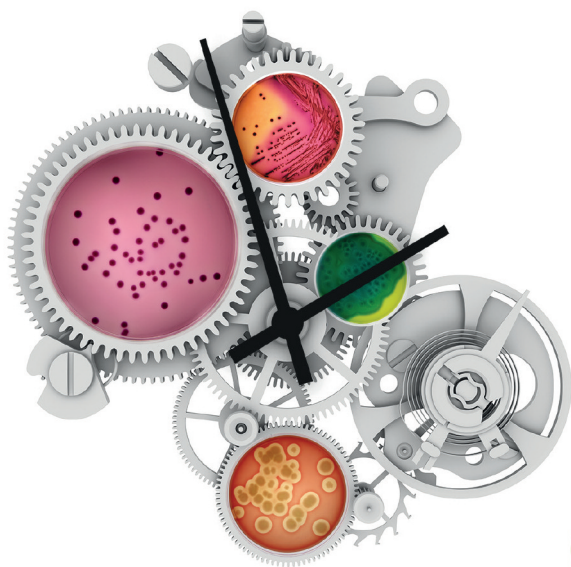
The improvements at other food processors have prompted leading retailers to request their use at other processing sites in their drive to eliminate hair complaints. In addition to an improved customer relationship, companies using these products experience reduced costs due to:

- KleenCaps are more comfortable for staff and together with the complete anti-microbial coating mean they can be worn all day – reducing usage by 75%.

- Environmental gains from the non-disposal and landfill of nonwovens – saving environmental disposal costs often off-set against cardboard. New KleenCaps can be sent to a textile recycling centre and used as wipers by industry creating a further revenue stream.

Using HACCP International approved fit for purpose hair containment products, such as HairTite Hi-Care with new KleenCaps, can eliminate or drastically reduce hair complaints, as demonstrated by industry and save you money compared to the use of mob caps.

Beard Shield, Neck Shield and Arm Shield have also been certified by HACCP International. ■



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