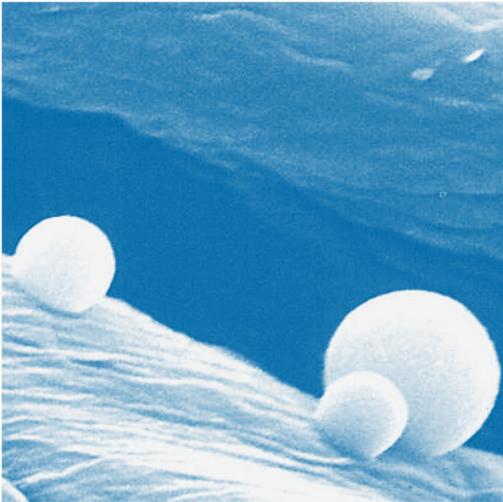


# What is Celessence™ Technology and How Does it Work?

Celessence™ technology is a new delivery system that allows us to apply fragrances, or other actives onto clothing and furnishing fabrics.



Microcapsules, around 5 microns, containing the active

Tiny polymeric microcapsule shells surround the active or fragrance protecting it during the lifetime of the article.

A novel binder system fixes the microcapsule shells onto the fabric or garment during the finishing process. The capsules are easily applied through padding and exhaust finishing processes.

The contents of Celessence™ microcapsules are released with friction and movement such as walking and stretching so you get the benefit gradually over time.

Celessence™ technology survives multiple washes and dry clean cycles, thereby allowing the benefits of the contents of the microcapsules to be enjoyed over a long period of time.



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All sorts of actives can be encapsulated such as aloe vera, vitamin E, fragrances and aromatherapy oils to name but a few. The benefits of Celessence™ technology to the consumer are numerous

- Aloe vera can be used to enhance the softness of garments for clothes that feel fantastic against the skin
- Aromatherapy oils can be encapsulated to provide mood enhancing clothing for well being- clothes to relax or clothes to energise
- Fresh, clean fragrances keep furnishings and clothing smelling fresh and clean during use and storage

The possibilities are endless...

Celessence™ capsules have been dermatologically tested and found to be safe to the skin. Celessence™ microcapsules have also been eco- tested and when applied to textiles will pass the Oeko-Tex 100 standard.

## Celessence™ technology is an award winning technology

•2006 Murray Pearce award for Innovation, Fragrance Foundation, UK

•2005, FIFI award, USA for Technological Breakthrough of the Year

# Consumer Data on Bed Linen

## Test Methodology

A vanilla fragrance was applied to sheets and pillow cases using Celessence™ technology.

The objective was to gauge consumer acceptance of the product idea.

The test evaluated sheets and pillow cases using Celessence™ technology compared to sheets and pillow cases in the same fabric without treatment (control).

The test method used was a blind 4 week sequential monadic home use. Consumers used either treated or untreated sheets for the first 2 weeks and then switched to the other type for an additional 2 weeks.

	Treated	Control
Base Size	(21)	(21)
Overall Rating- after 2 weeks	69	52
Purchase Intent- definitely will buy	38%	19%
Compare to Usual Sheets- smelled fresh/clean longer (after 2 weeks)	62%	14%
Liking of Scent after 2 weeks- like extremely/ very much	48%	5%
Long Lasting Scent- just about right after 2 weeks	43%	14%
Fresh and Clean- agree strongly/ somewhat	86%	43%
Relaxing- agree strongly/ somewhat	75%	29%
Market Concept Promise- agree strongly/ somewhat	67%	29%

Source: IFF Sensory Sciences Group, 2006, New Jersey



Celessence™ technology used with the correct fragrance can help to significantly influence purchase intent for bed linen



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Celessence International Ltd is an affiliate of International Flavors and Fragrances Inc.

# Consumer Data on Socks

## Test Methodology

A consumer study was carried out on consumer perceptions of socks treated with Celessence™ technology. Cotton and nylon socks were treated with unscented Aloe Vera and scented Aloe Vera. The controls were untreated cotton and nylon socks.

### Point of Purchase (POP) Evaluations

Consumers evaluated the six different socks on a variety of attributes (such as quality, softness, prevention of foot malodor, etc) gave an overall rating, indicated their purchase intent, and selected the 'best' sock.

### In use test

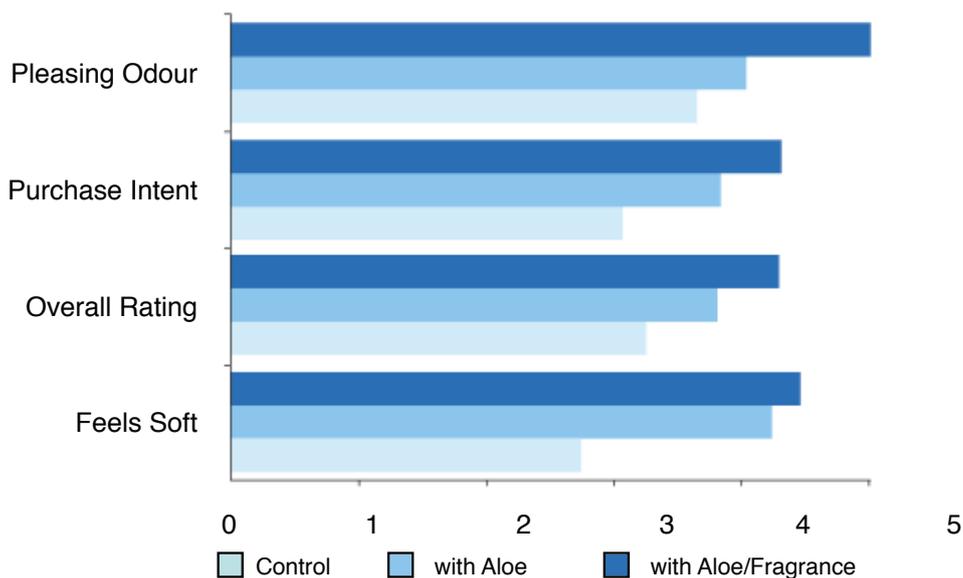
Half the consumers wore nylon socks and half wore cotton socks for one day. For the second day those who wore the nylon socks wore the cotton socks and vice versa.

## Results

The nylon and cotton socks treated with scented Aloe Vera received the highest ratings. The control cotton sock was given the lowest rating.

The nylon and cotton socks treated with scented Aloe Vera received the highest purchase intent. The control cotton sock was given the lowest purchase intent rating.

The scented socks were given the highest scores for making the consumers feel good and were judged to be the best overall



**IFF**

Assessment of socks treated with Celessence™ microcapsules, by 70 consumers in IFF's Research facility, Union Beach USA. Significant benefits delivered by the technology vs. untreated socks.



# Celessence™ Actives

## Aloe Vera

Aloe Vera , known as 'lily of the desert' has been used in skin care products for over 2000 years. The leaf contains over 75 nutrients, including minerals, amino acids and vitamins, providing a rich cocktail of goodness for the skin.

The Aloe Vera in Celessence™ technology is from recognised high quality sources approved by The International Aloe Science Council, Texas.



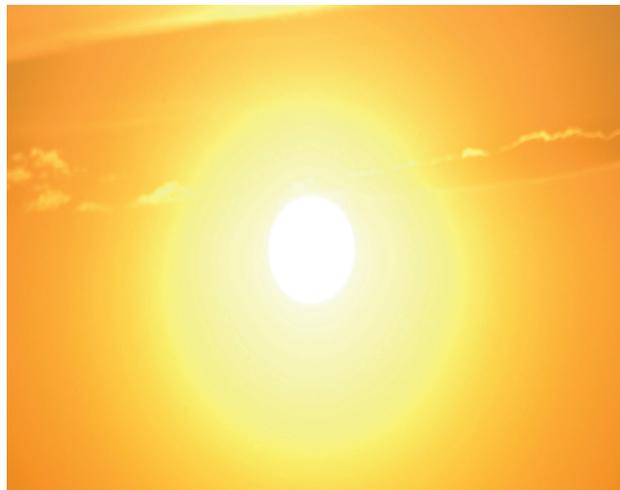
## Sea Kelp

Sea kelp is a brown algae which grows on rocks along marine shores. Sea kelp is rich in nutrients magnesium, potassium, calcium, iron and iodine that all work towards improving the tone and look of the skin.



## Vitamin E

Vitamin E is present in varying quantities in plants, nuts and fruits. It is a popular ingredient in skin creams and has been shown to significantly help in the reduction of scarring from wounds and the appearance of stretch marks on the skin.



# Safety

Ensuring that Celessence™ technology has been thoroughly tested so that it is safe to use has been of paramount importance to us in the development process.

## Skin Patch Testing

We have tested our microencapsulated technology both directly on skin, and by applying it to textiles at a high loading (3g/m<sup>2</sup>), and then exposing those treated textiles to skin, in a clinical trial.

## Test Summary

No clinical evidence of irritation or sensitization was observed in any of the subjects completing any of the studies.



## Celessence™ Technology Ingredients

The fragrance ingredients and actives satisfy the most current guidelines published by the International Fragrance Association (IFRA). These guidelines on the use of fragrance materials were established following a review by the Scientific Committee of IFRA of all Research Institute for Fragrance Materials (RIFM), industry, and literature safety data.

## The EU Cosmetics Directive

From a safety perspective, IFF performs its safety reviews of micro-encapsulated products in relation to consumer exposure according to the principles laid down in the EU cosmetic directive (76/768/EEC).

However we consider the application of these products onto textiles to be outside the scope of this directive and that clothes with encapsulated ingredients are not cosmetics in the sense of this directive (see paper on EU cosmetics directive).

## Conformity with Oeko-Tex Standard 100

Our product has been tested in accordance with the Shirley Technologies Product Eco-Testing Schedule (CPETS). The testing was carried out according to the Oeko-tex Standard 100 and CPETS procedures and requirements.

The product was not found to contain formaldehyde (released), extractable heavy metals, chlorinated phenols or organo-tin compounds at concentrations which would fail the aforementioned schedule. The results generated indicate that the product would be suitable for use with Oeko-Tex certified textile products.

NB This information is based on our knowledge of this product at the time of publication. It is the responsibility of the user to assess their final product and to ensure compliance with the requirements of the standard



# Durability

Celessence™ microcapsules are bound to fabrics in the mill. With wear and use, the capsules break to release their contents. During washing, capsules can also be removed from the fabric.

How long the technology survives depends on many aspects. These include the fabric composition, the method of application in the mill, the wash conditions, and the in-use criteria.

Unlike other technical finishes for textiles, the gradual depletion of the technology is not in itself a problem, as long as the consumer can still derive a meaningful sensory benefit from the garment or item over time.

Since Celessence™ technology is a sensory finish, we measure durability by the number of washes it can survive and still clearly deliver a perceivable fragrance cue, or softness benefit in the case of un-fragranced actives.

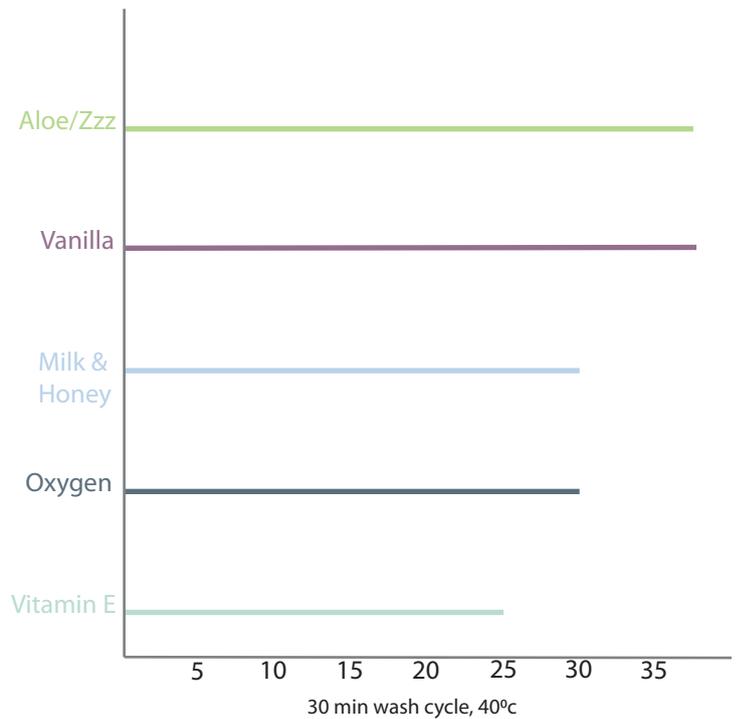
Analytically, we can still measure the presence of capsules after 35 washes (GC measurement after extraction).

However, in order to assess what the consumer will experience with respect to durability, we conduct sensory panels. These trained panels can assess the sensory benefit delivered by Celessence™ technology and determine the 'real life' durability of our technology.

Celessence™ technology is designed to gradually diminish as it releases its contents.



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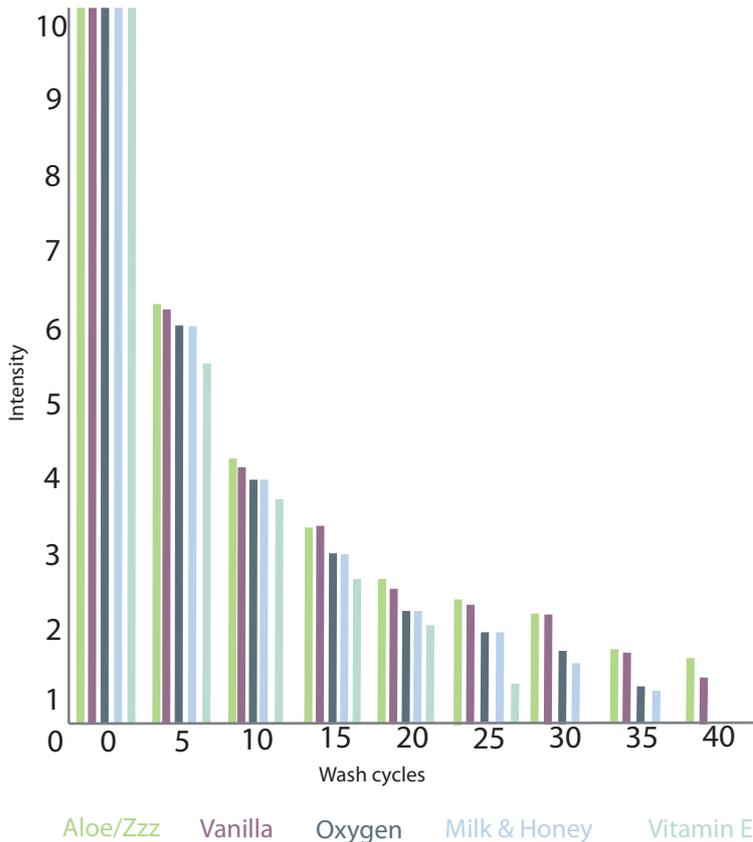


The above graph shows data generated on 100% cotton bed-sheets, where the technology was applied via padding. We were able to detect fragrance after at least 25 washes, and longer in some cases.



# Durability

The graph below shows the gradual depletion of the technology, over multiple wash cycles. A score of 1 indicates that the sensory finish is still clearly perceivable and hence a benefit continues to be delivered. In addition, the IFF custom-designed fragrances fade to a gentle freshness which is noticeable even after the original character has gone (i.e. after 40 washes for Aloe Vera/Zzz)



Celessence™ Technology delivers an exciting new range of benefits for textiles. This patented product system gives consumers new and better products, which will survive multiple wash and dry-cleaning cycles.



## Dry Cleaning

We have also carried out independent dry cleaning trials on both cotton (standard cycle) and wool (delicate cycle) fabrics.

These showed that capsules were still perceivable after 10 dry-clean cycles.



# Communicating Celessence™ Technology to the Consumer

Celessence™ technology is new to the consumer in apparel and home textiles. Hence, effective communication of the technology is an essential pre-requisite for optimising sales of your brand.

This data sheet provides insights and suggestions for communicating Celessence™ technology.

## Awareness

To draw the attention of the consumer to the use of Celessence™ technology, we suggest the use of Celessence™ hangtags. These are available directly from us.



It is also necessary to use in store displays or audio-visual aids to draw attention to the technology. Briefing sales staff on the technology in the brand's own stores is another way to communicate the benefits of the technology.

## Consumer Benefits

Celessence™ technology can offer a myriad of well being benefits to the consumer of your brand. Whether the benefit is aromatherapy (relax, energise, restore), freshness, softness, moisturising or scent, communication of the benefit is paramount to the success of your launch. Below are some examples of communicating different benefits:

**Relaxing:** this garment has been treated with a special blend of aromatherapy ingredients to relax and calm.

**Moisturising:** this garment contains natural Aloe Vera for a soft silky feel against the skin

Descriptions of the different scents in the Celessence™ collection are available on request.

## Wash care instructions

Garments and textiles treated with Celessence™ technology may be washed or dry cleaned.

Wash care recommendations are:  
Hand wash or machine wash gentle cycle up to 40°C low tumble dry, low iron.

## Durability

Details on durability are available in the Durability fact sheet. Whilst we have analytical data for durability up to 35 washes, we recommend claiming a maximum of 25 washes for padding applications and 15 for exhaust in order to manage consumer expectations.

You may wish to communicate durability in terms of number of launderings or time. An example of communicating time is "with proper care, the benefits of Celessence™ technology will last for up to 6 months".

Any textiles treated with Celessence™ technology may also be dry cleaned up to 10 times.

