

HEIQ[®]
ALLERGEN* TECH

HeiQ Allergen* Tech

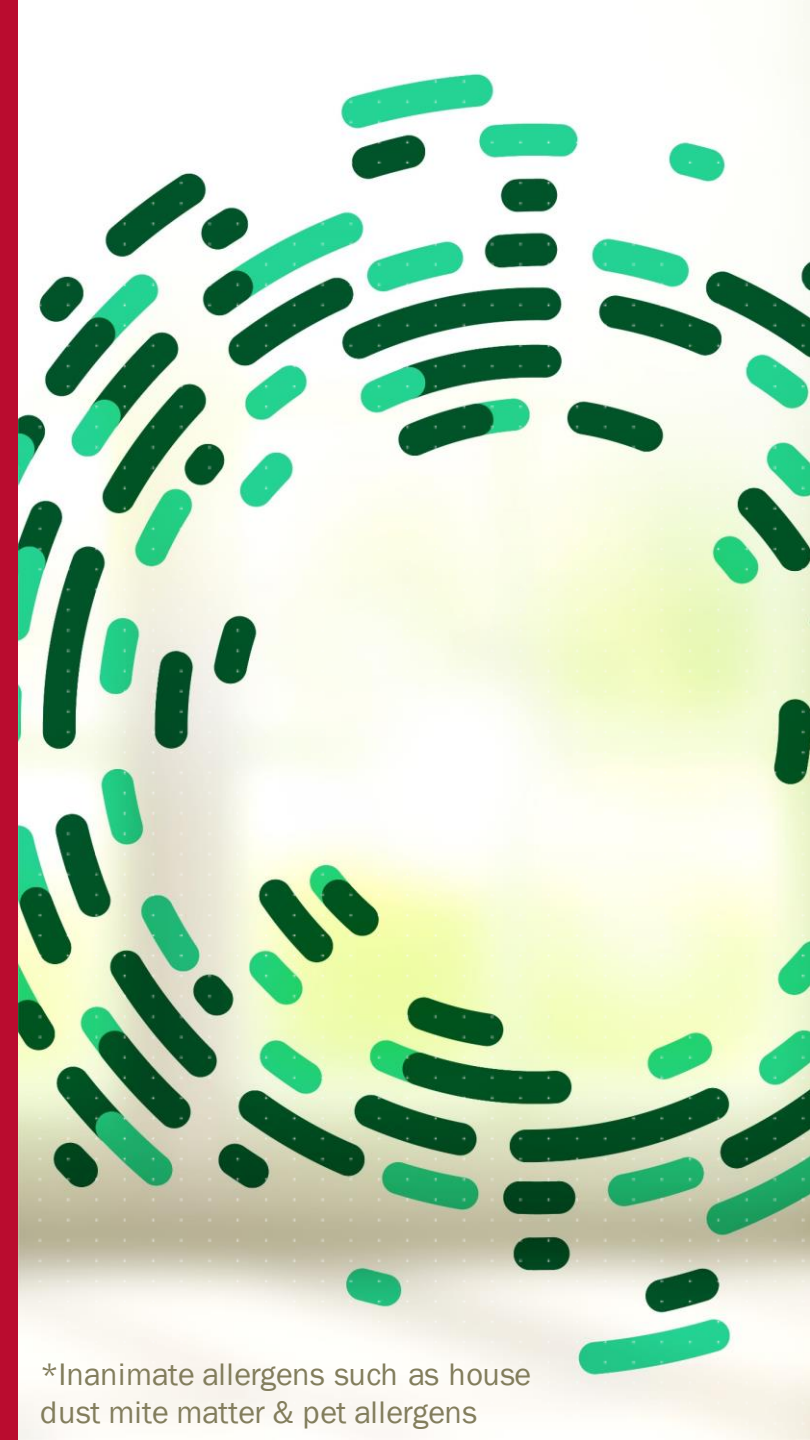
Synbiotic protection for home textiles

22 September 2022

SWISS
TECH
INSIDE



HeiQ Synbio HAL-01



*Inanimate allergens such as house dust mite matter & pet allergens



Differentiate. Innovate.

OUR DRIVING FORCE IS:

To make every-day products more sustainable whilst delivering superior levels of hygiene, comfort or protection





HeiQ at a glance



GLOBAL & DIVERSE

CAPABLE & AWARDED

BRANDED & TRUSTED

As of Q2 2022

Pioneering Sustainable materials

We aim at making all materials a better product and to multiply our impact by delivering better sustainability & ESG downstream along the value chain.



OEKO-TEX
suited products



Swiss
Environmental
Award

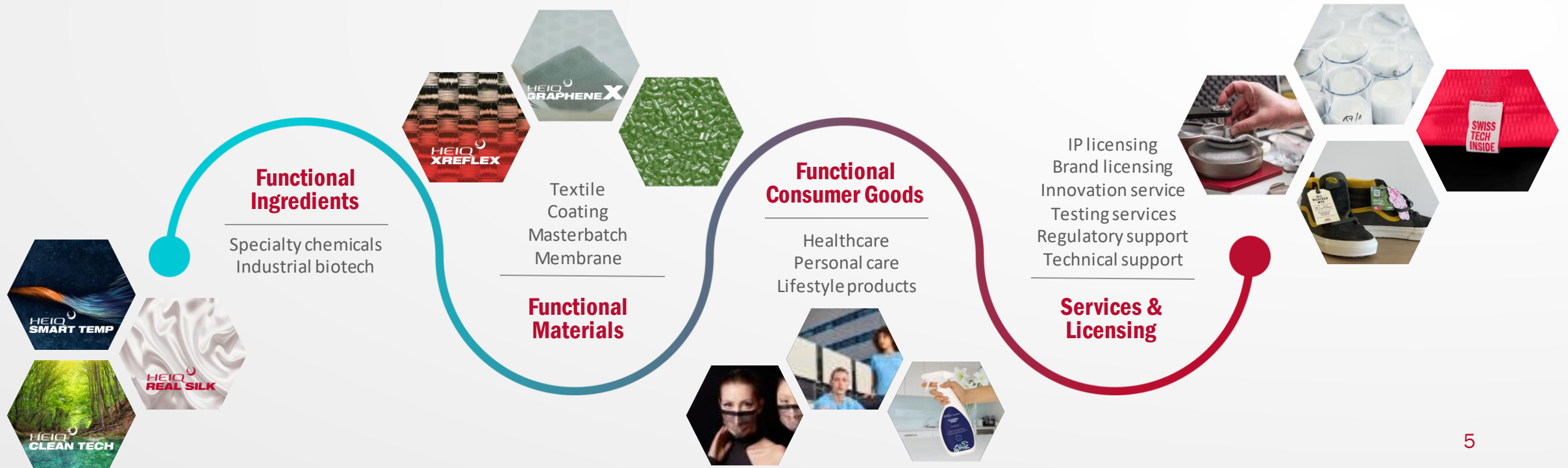
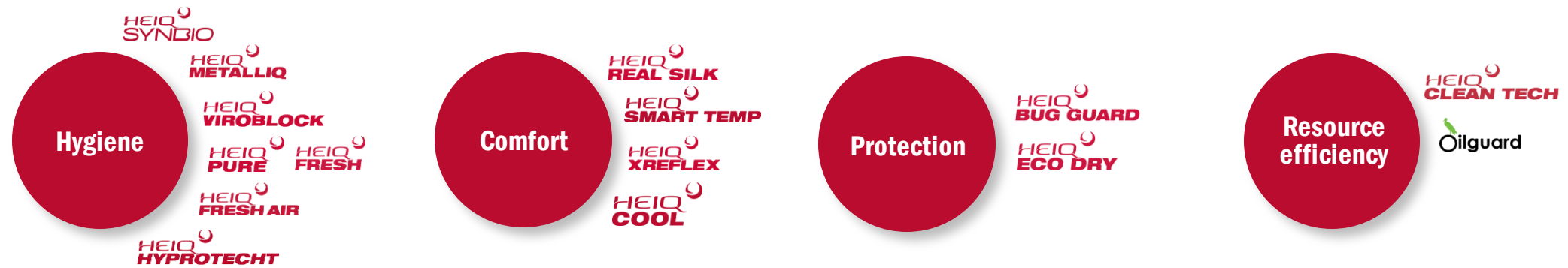


IKEA Democratic
Design Award





HeiQ's 4x4 offering: 4 functions in 4 forms





HEIQ **ALLERGEN* TECH**

Synbiotic protection for home textiles



**SWISS
TECH
INSIDE**

*Inanimate allergens
such as house dust mite
matter & pet allergens



What is the issue?



Allergies

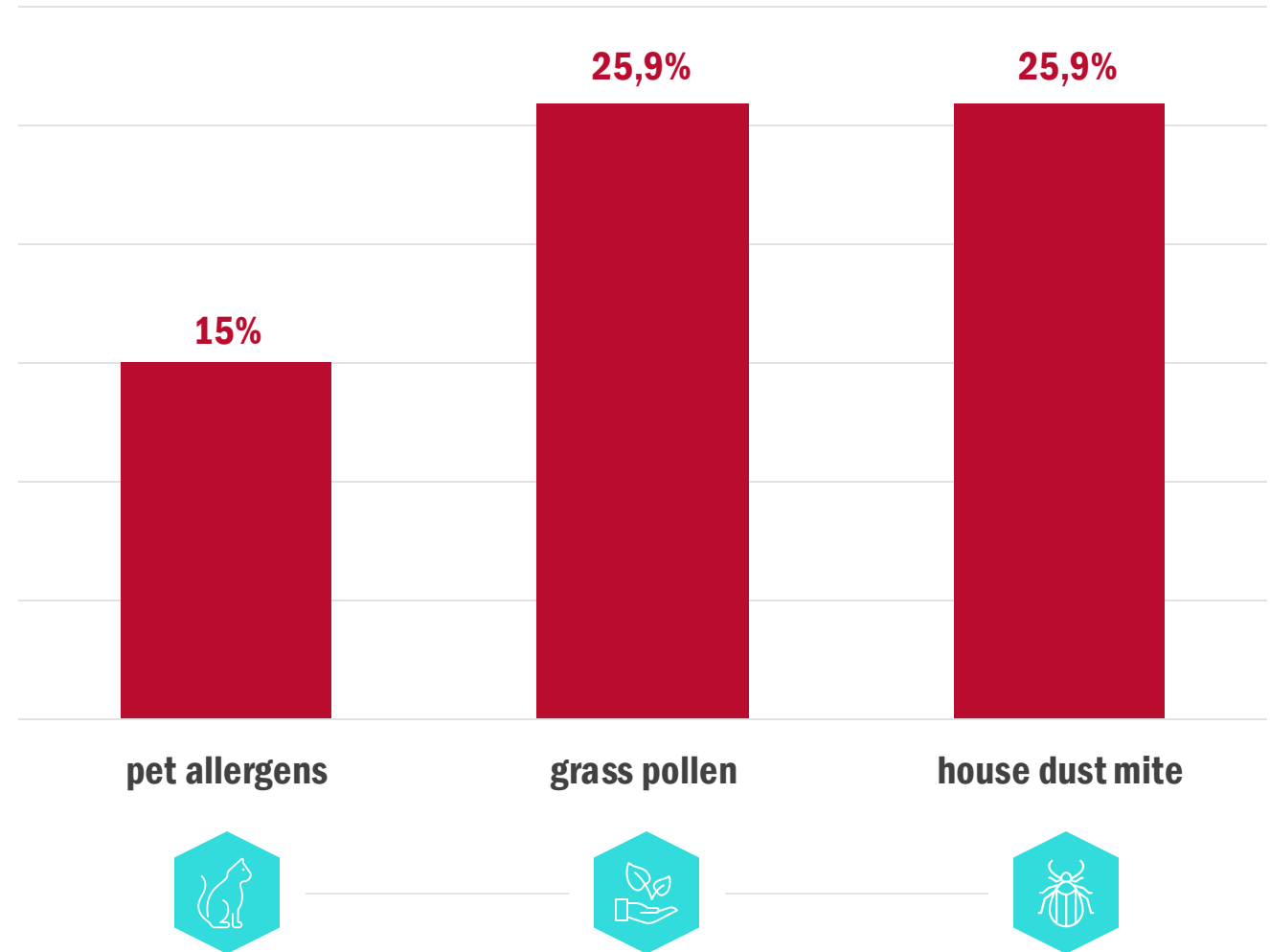


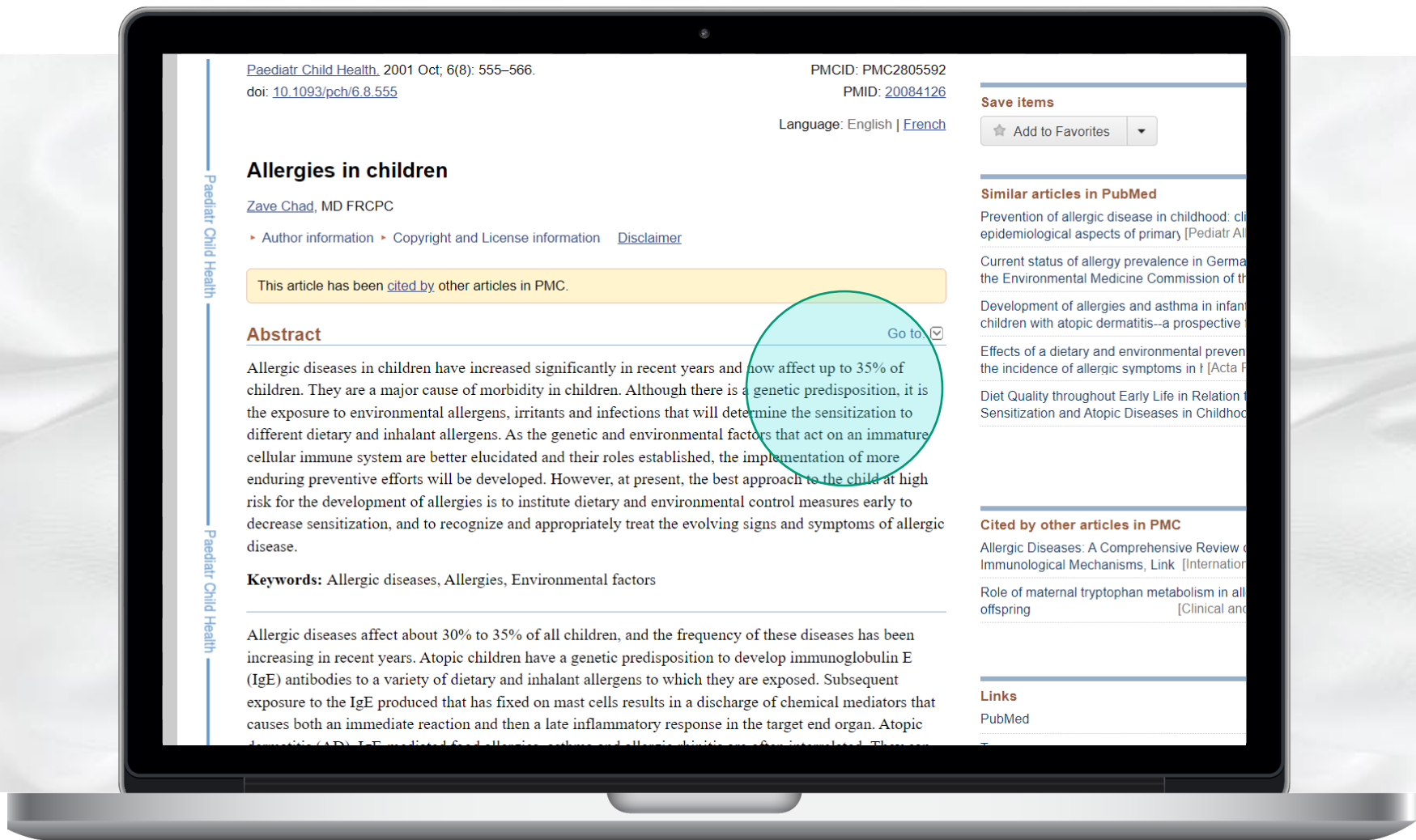
Did you know?



The **prevalence** of respiratory allergy in an **average adult population** is **40,3%**.

The prevalence of the clinical diagnosis of Allergic Rhinitis is **30,9%** with a peak in the third and fourth decennium of life^[2].





[Paediatr Child Health](#). 2001 Oct; 6(8): 555-566.
doi: [10.1093/pch/6.8.555](https://doi.org/10.1093/pch/6.8.555)

PMCID: PMC2805592
PMID: [20084126](https://pubmed.ncbi.nlm.nih.gov/20084126/)

Language: English | [French](#)

Allergies in children

[Zave Chad](#), MD FRCPC

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This article has been [cited by](#) other articles in PMC.

Abstract

Go to

Allergic diseases in children have increased significantly in recent years and now affect up to 35% of children. They are a major cause of morbidity in children. Although there is a genetic predisposition, it is the exposure to environmental allergens, irritants and infections that will determine the sensitization to different dietary and inhalant allergens. As the genetic and environmental factors that act on an immature cellular immune system are better elucidated and their roles established, the implementation of more enduring preventive efforts will be developed. However, at present, the best approach to the child at high risk for the development of allergies is to institute dietary and environmental control measures early to decrease sensitization, and to recognize and appropriately treat the evolving signs and symptoms of allergic disease.

Keywords: Allergic diseases, Allergies, Environmental factors

Allergic diseases affect about 30% to 35% of all children, and the frequency of these diseases has been increasing in recent years. Atopic children have a genetic predisposition to develop immunoglobulin E (IgE) antibodies to a variety of dietary and inhalant allergens to which they are exposed. Subsequent exposure to the IgE produced that has fixed on mast cells results in a discharge of chemical mediators that causes both an immediate reaction and then a late inflammatory response in the target end organ. Atopic dermatitis (AD), IgE-mediated food allergies, asthma, and allergic rhinitis are 4 sensitized children. These are

Save items

★ Add to Favorites ▼

Similar articles in PubMed

Prevention of allergic disease in childhood: clinical epidemiological aspects of primary [Paediatr Allergy Clin Immunol 1998; 13(1): 1-10]

Current status of allergy prevalence in Germany: the Environmental Medicine Commission of the German Society of Allergy and Clinical Immunology [Allergol Int 1998; 47(1): 1-10]

Development of allergies and asthma in infancy: children with atopic dermatitis--a prospective study [Acta Paediatr Scand 1998; 87(1): 1-10]

Effects of a dietary and environmental prevention program on the incidence of allergic symptoms in infancy [Acta Paediatr Scand 1998; 87(1): 1-10]

Diet Quality throughout Early Life in Relation to Sensitization and Atopic Diseases in Childhood [Paediatr Child Health 2001; 6(8): 555-566]

Cited by other articles in PMC

Allergic Diseases: A Comprehensive Review of Immunological Mechanisms, Link [International Archives of Allergy and Immunology 2001; 125(1): 1-10]

Role of maternal tryptophan metabolism in allergic offspring [Clinical and Experimental Allergy 2001; 31(1): 1-10]

Links

PubMed



Did you know?



Allergy is an over-reaction of our body's immune system on specific - otherwise harmless - substances called allergens.



Exposure



Sensitization,
response to
stimuli



Allergic
symptoms,
irritation



Reduced Sleep
Quality, reduced
Energy Levels



Allergic Rhinitis &
Asthma
(pathology)

Allergy symptoms:



COUGH



HEADACHE



SKIN RASH



SNEEZING



EYE REDNESS



ITCHY SKIN



RUNNY NOSE



LACRIMATION
FROM THE EYES



BURNING AND
DRY SKIN



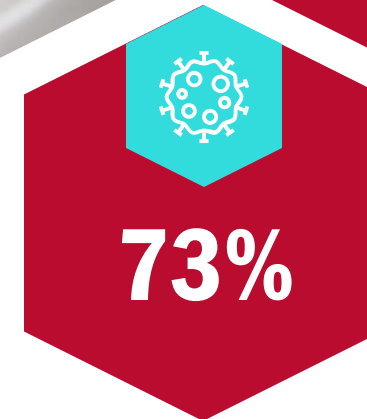
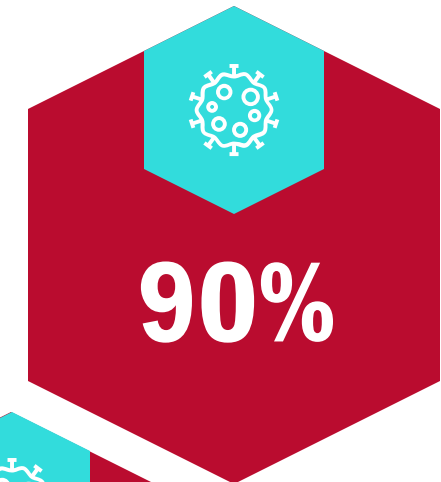
**Aero
allergens in
the bedroom**



Did you know?



'In the US, more than **90%** of bedrooms have 3 or more detectable allergens and **73%** have a least one allergen at elevated levels.'^[1]





Did you know?



The **bedroom** is home to many types of aero allergens such as pet allergen and house dust mite matter allergen.



Every pillow, every mattress, every duvet in a private home or in a hospitality environment contains allergens after 6 months of use.



Aero allergens go airborne with the slightest draught or movement and enter our respiratory system. We breathe in large quantities of allergens and the symptoms aggravate as we get closer to the morning.



Exposure during sleep 6 to 8 hours is a long and intense exposure.





Respiratory allergy caused by house dust mites: What do we really know?

Moisés A. Calderón, MD, PhD,^a Allan Linneberg, MD, PhD,^b Jörg Kleine-Tebbe, MD,^c Frédéric De Blay, MD, PhD,^d Dolores Hernandez Fernandez de Rojas, MD, PhD,^e Johann Christian Virchow, MD, FRCP, FCCP,^f and Pascal Demoly, MD, PhD^g *London, United Kingdom, Copenhagen and Glostrup, Denmark, Berlin and Rostock, Germany, Strasbourg, Montpellier, and Paris, France, and Valencia, Spain*

Current Allergy and Asthma Reports (2018) 18: 52
<https://doi.org/10.1007/s11882-018-0805-7>

ALLERGENS (RK BUSH AND S VIETHS, SECTION EDITORS)



Bedroom Allergen Exposure Beyond House Dust Mites

Paivi M. Salo¹ · Richard D. Cohn² · Darryl C. Zeldin¹

Published online: 20 August 2018

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<http://www.karger.com/Article/FullText/339853?hl=1&q=Katrien%20Blomme>

International Archives of
**Allergy and
Immunology**

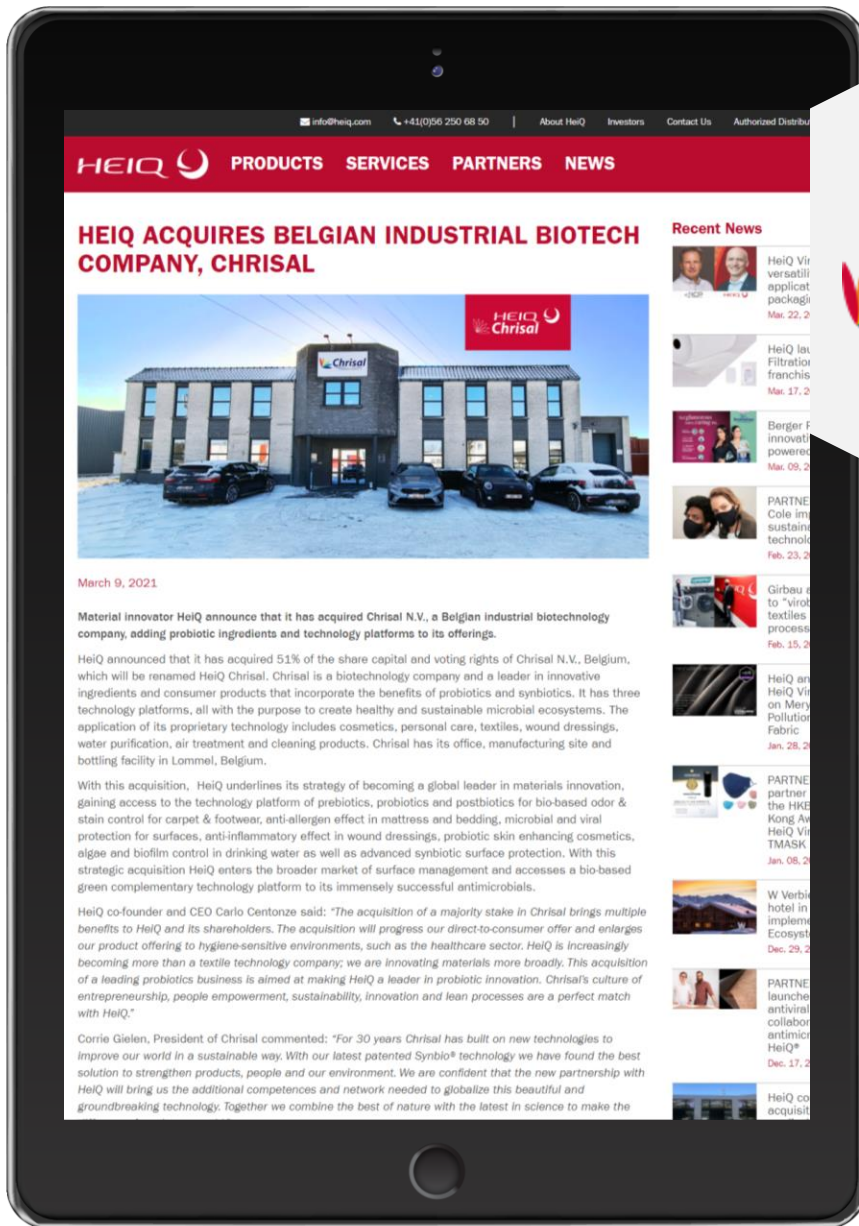
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Blomme K. · Tomassen P. · Lapeere H. · Huyenne W. · Bonny M. · Acke F. · Bachert C. · Gevaert P.
Prevalence of Allergic Sensitization versus Allergic Rhinitis Symptoms in an Unselected Population
Int Arch Allergy Immunol [2013;160:200–207](#) (DOI: 10.1159/000339853)



What is the solution?

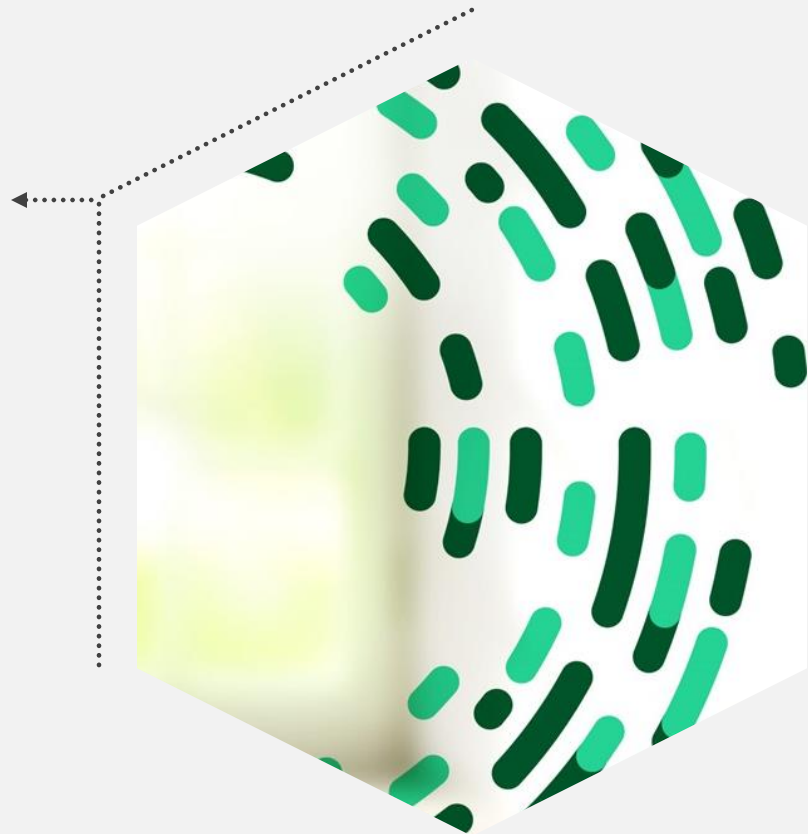


In 2021, HeiQ acquired a majority share of the Belgian industrial biotech company, Chrisal BV.

The HeiQ Chrisal biotechnology platform uses **probiotics**, prebiotics and **synbiotics** in ventilation installations for **air purification** in homes, offices and cars, for industrial process **water treatment**, hospital cleaning, in Athlete Shoe Spray...



HeiQ Allergen* Tech...



...is a 100% biobased, patent pending technology which reduces the exposure to allergens such as house dust mite matter and pet allergens with the help of active probiotics

**Naturally derived technology
to reduce allergens on textiles.**

*Inanimate allergens such as house dust mite matter & pet allergens



Synbiotic protection against allergens

- Technology based on the natural process of probiotic colonization
- A powerful blend of multiple **non-modified** bacterial **strains** of the spore-forming *bacillus* family...
- ...delivered to the textile on a 100% **biobased** protective and slow-release matrix...
- ...significantly reduces inanimate allergens from textiles.

- **Durable performance** beyond 20 home launderings
- Patent-pending technology ^[3] for global application
- 100% biobased product (the probiotics AND the matrix)
- Non-irritant to the skin
- No impact on fabric properties such as breathability, color, hand feel or wicking





Allergy UK endorsed

The British Allergy Foundation, trusted authority, reviewed our data, assessed the technology and granted HeiQ Allergen Tech the Allergy UK Seal of Approval



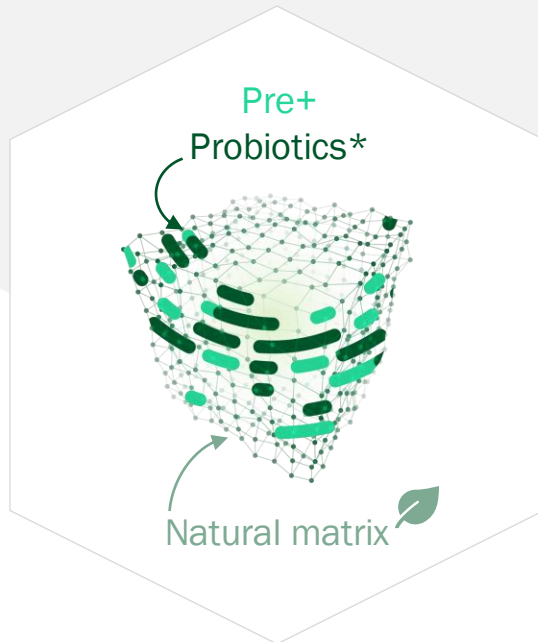


Innovative allergen control at work

1

Probiotic Colonization:

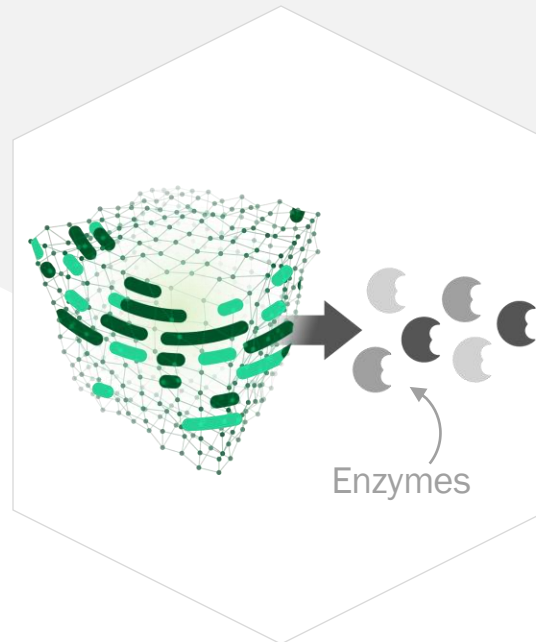
Synbiotics (= probiotics + prebiotic 'lunchbox') in NATURAL matrix applied to the textile



2

Enzyme Production:

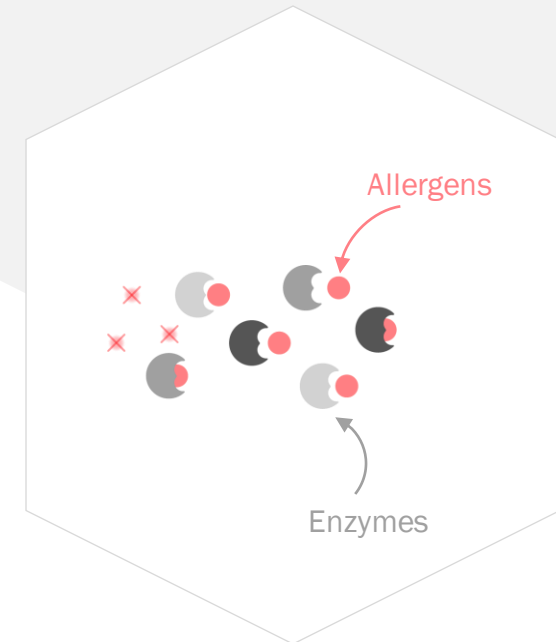
Blend of probiotics produces a wide range of enzymes



3

Allergen removal:

These enzymes "digest" a large variety of inanimate allergens (= organic protein molecules)



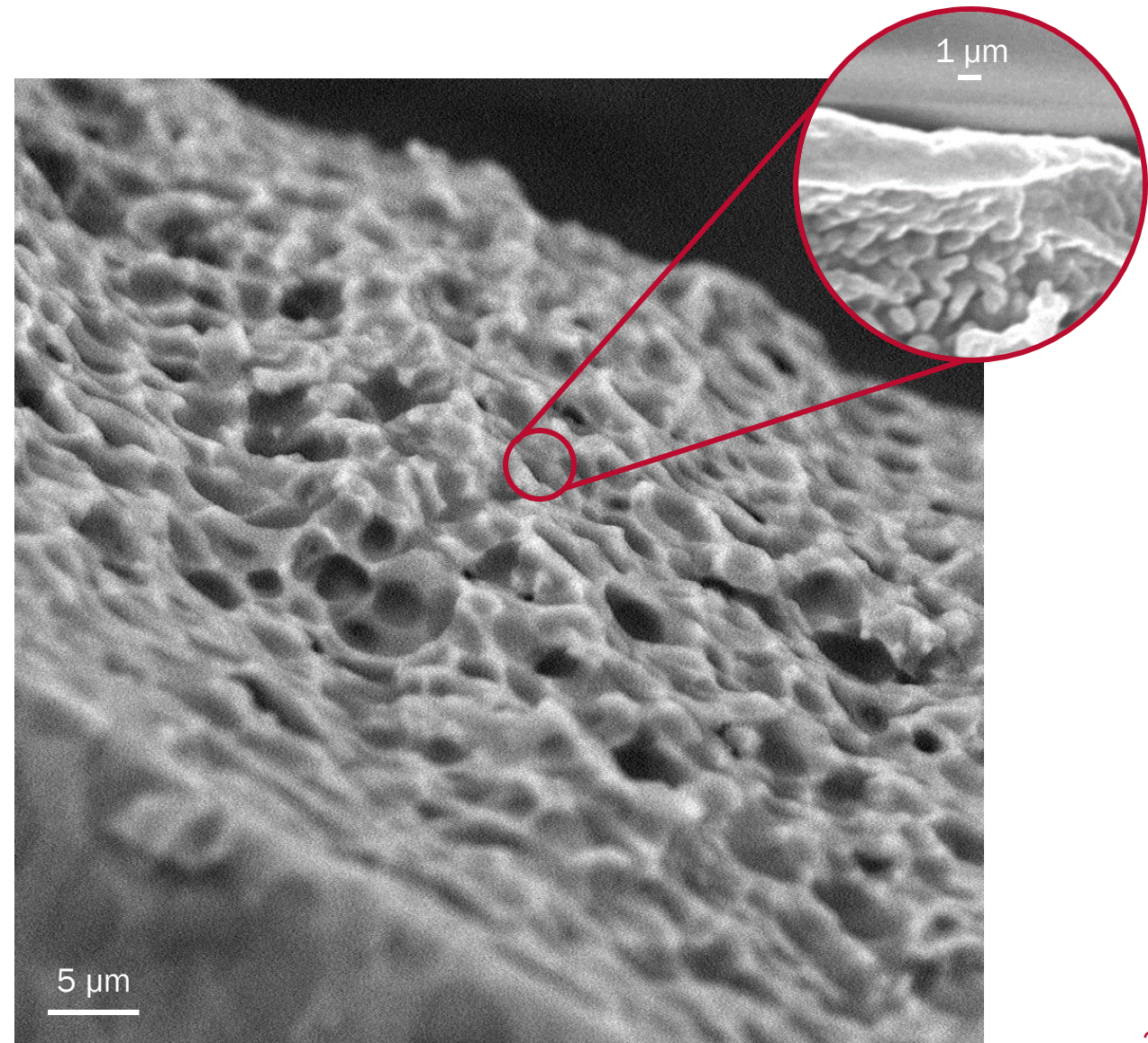
*Probiotics (food-grade) are derived from natural source materials. They were discovered in soil and water by scientists.



Patent-pending technology

HeiQ Allergen Tech
textile treatment matrix

Scanning Electron Microscope
image showing the porous
biopolymer matrix
containing the synbiotic
microorganisms (*magnified
section*)





HeiQ Allergen Tech (HeiQ Synbio HAL-01) – Technical profile



Fiber types:

Applicable on all fiber types



End use:

Home textiles such as mattresses, mattress toppers, bed linen, pillow covers, but also furniture such as upholstery, sofas, rugs and carpets



Chemical basis:

Natural probiotics entrapped in a biopolymer matrix



Application:

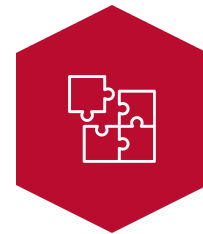
Pad application

- Non-washable items: min. 5.0 % w.o.f.
- Washable items: min. 6.0 % w.o.f.



Ionic charge:

Cationic



Compatibility:

Product compatibility with other finishing agents to be checked in advance.



Where can HeiQ Allergen Tech be used?



Application areas



Home textiles such as mattresses, mattress toppers, bed linen, pillow covers, but also carpets, rugs and upholstered furniture...

...whatever is in reach of dust mites and your beloved pets – your pillow, your bed, your sofa, your carpet, your car, your office, in hotel room...





How can HeiQ Allergen Tech be tested?



Proof of functionality

Tested and certified by an independent, accredited lab, BMA Labor in Bochum, Germany.

Biologisches Mess- und Analyzelabor GbR



Laborbericht / Laboratory Report

BMA protocol: On a contaminated textile, after only two weeks of incubation and colonization,
HeiQ Allergen Tech successfully reduced:

83,6%

of cat (hair) allergen Fel d1

76,5%

of dog (hair) allergen Can f1

96,6%

of house dust mite matter allergen Der f1



HeiQ Synbiotic Effect Test

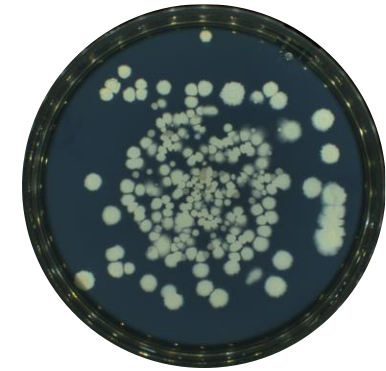
Quantitative, inhouse test method that measures the viability of the synbiotic spores

Correlates to the allergen reduction performance tests

- Proving that probiotics are present in relevant numbers and alive

The results are given as a number of colony forming units per gram textile (CFU/g)

Test executed at Microbe Investigations Switzerland (MIS) Iberia & China



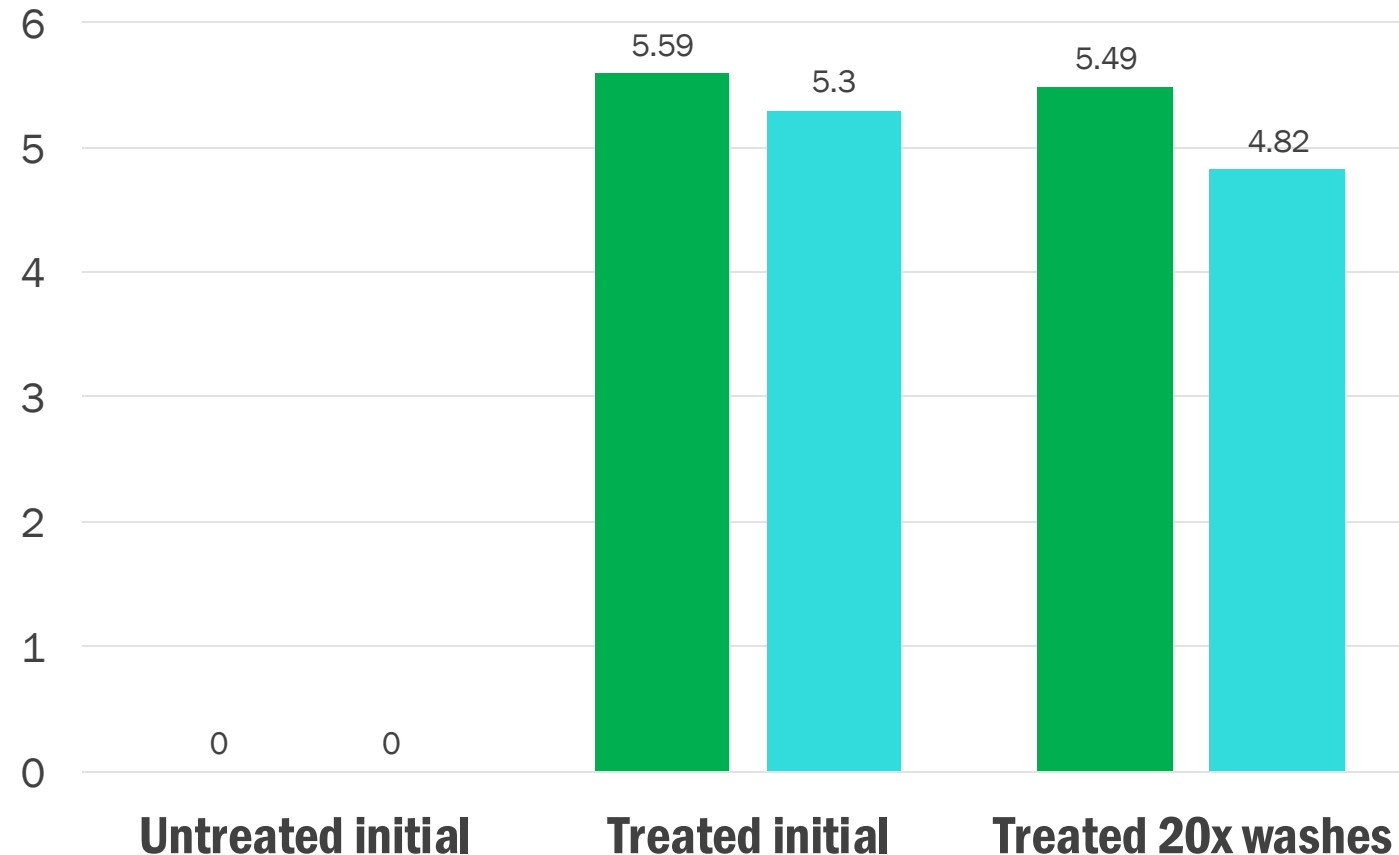
Number of colony forming units per gram (CFU/g)





Excellent viable counts of probiotics

Log (CFU/g)



The treated samples present excellent probiotic counts BEFORE and AFTER washing, on cotton and polyester.

■ Cotton
■ Polyester

For Wash Durability (20HL and beyond) the crosslinker HeiQ Effect Box must be added (0,3% w.o.f.).

Cotton: LS22-02952 / Polyester: LS22-02953



Fabric validation passing criteria

Quality Validation (QV) & Control (QC)

- Non-washable items test unwashed
- Washable items: Test before and after x20 washes, according to ISO 6330-4G
- Test: HeiQ Synbiotic Effect Test (Number of viable spores)

Non-Washable:

- Colony Forming Unit (CFU) minimum LOG4 = 10000 CFU/gram sample

Washable:

- Test unwashed:
Colony Forming Unit (CFU) minimum LOG4,5 = 32000 CFU/gram sample
- Test after 20HL:
Colony Forming Unit (CFU) minimum LOG4 = 10000 CFU/gram sample



HeiQ Allergen Tech Consumer benefit & communication



Consumer claims – Examples

- *HeiQ Allergen* Tech reduces inanimate allergens that can become airborne from textiles causing allergy symptoms and asthma.*
- *Active synbiotics of HeiQ Allergen* Tech provide lasting freshness.*
- *Continuous Cleaning Action / Self-cleaning action*
- *HeiQ Allergen Tech is an allergen Reducer*
- *Hypoallergenic, anti-allergen, non-biocidal, biotechnology, synbiotic technology, bio-functional textiles, Active probiotic product protection...*
- *HeiQ Allergen Tech is a fabric technology that reduces inanimate allergens on the surface such as dust mite matter & pet allergens (dander, hair, and saliva) – thanks to the proprietary combination of biobased pre+probiotics.*
- *HeiQ Allergen Tech installs a balanced microbiome on textiles.*



Required disclaimer examples (related to «Allergen*»):

*Inanimate allergens

*Inanimate allergens such as dust mite dander & pet allergens (pet hair, dander, saliva)

*Inanimate allergens such as house dust mite matter & pet allergens

*Reduction of inanimate allergens

*Control of inanimate allergens such as...

(“non-living” can be used instead of “inanimate”)



Important: Allergy UK endorsement beyond the seal on the HeiQ hangtag requires approval by Allergy UK !



HeiQ Partner licensing program

Requirements to use the HeiQ Allergen Tech Ingredient Brand elements



Trademark license agreement: Adherence to HeiQ's standard license agreement is required. Providing the brand company name and contact person is mandatory



Fabric testing: The HeiQ treated fabric has to be tested **prior** to the hangtag application. A test report needs to be submitted for HeiQ's review, according to "HeiQ Allergen Tech treated fabric validation rules".



Strict product label claim approval by HeiQ required



**Get certified
HeiQ MILL partner!**



**Get licensed
HeiQ BRAND partner!**

Consult HeiQ for Guidelines and Approval process documents!



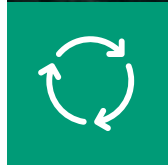
Important: Active or implied health claims (such as "anti-allergy") and biocidal claims on treated articles are not permitted.



Sustainability of HeiQ Allergen Tech



Sustainable technology for allergen control



Designed for circularity



100% biobased technology
(probiotics and the slow-
release matrix)



OEKO-TEX® suited &
meets most brand RSL
requirements



Based on the natural
process of probiotic
colonization

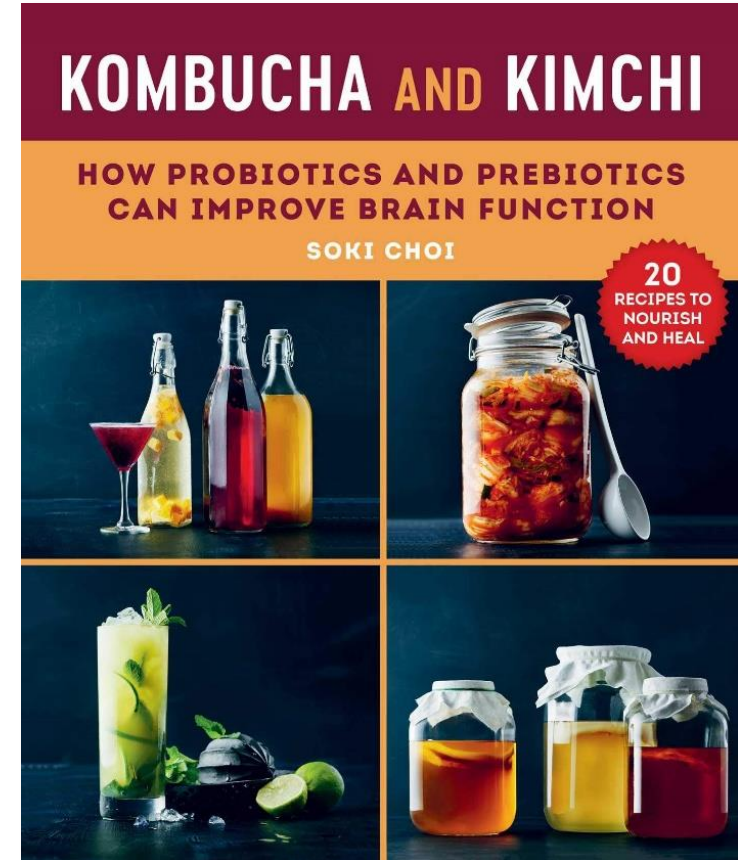




HeiQ Allergen Tech – 100% on-trend

- Proprietary, patent-pending technology
- Bio-functionalisation
- Naturally derived technology
- Renewable & biodegradable
- Designed for circularity
- Sustainable bio-technology
- **Elevator pitch:** Active probiotics continuously work to reduce allergens* from your textile products

*inanimate allergens



Differentiate. Innovate.



UK

London
HeiQ plc
Ultimate parent

Switzerland

Schlieren (Zurich)
HeiQ Materials AG
*Operational headquarters
R&D/Testing/Production*

Australia

Geelong
HeiQ PTY
R&D/Production

Austria

Herzogenburg
HeiQ GmbH
R&D/Sales

Belgium

Lommel
HeiQ Chrisal NV
R&D/Production

Germany

Regensburg
HeiQ RAS AG
R&D/Sales

Greater China

Shanghai
HeiQ Materials
Company Limited
Warehouse/Testing/Sales

Japan

Tokyo
Sales

Portugal

Moreira da Maia
HeiQ Iberia
Unipessoal Lda
R&D/Sales

Spain

Pizarra (Málaga)
HeiQ Medica SL
R&D/Production/Sales

Thailand

Bangkok
HeiQ Life
R&D/Production/Sales

USA

Concord & Calhoun
HeiQ ChemTex Inc.
R&D/Production/Sales

Brazil

Sao Paulo
HeiQ Life
Sales

Taoyuan City/Taiwan
HeiQ Company Ltd /
HX Company Ltd
Sales/Production

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