

FRESHEASE FOAM

ADDED PROTECTION AGAINST ALLERGENS & ASTHMA



INTRODUCTION

Asthma is a major health problem with an increasing global prevalence in both children and adults. The World Health Organization (WHO) estimates that 235 million people currently suffer from asthma. Asthma is the most common chronic disease among children.¹ In Malaysia, it is estimated about 1.5-1.8 million people are affected by the disease.²

According to the WHO, the strongest risk factors for developing asthma are a combination of genetic predisposition with environmental exposure to inhaled substances and particles that may provoke allergic reactions or irritate the airways. These can include house dust mites in bedding, carpets and stuffed furniture, pollution and pet dander.¹

In Malaysia about 80 to 90% of asthmatic patients (mostly children and young adults) have allergic asthma. Analysis of the response to specific allergens in Malaysian children with asthma showed that 90% reacted to house dust mite allergens.³

DUST MITES & ASTHMA



Dust mites are microscopic creatures which are closely related to spiders and ticks. In houses, they feed exclusively on human dander or dead skin that an adult human sheds at the rate of one to 1 ½ g per day. The average temperature for their optimum development is around 28°C.⁴ As many as 10,000 mites have been found in 1 g of dust.⁴

The most common and abundant species of this family is *Dermatophagoides pteronyssinus*, whose waste products contain the allergen Der p1.^{5,6} Evidence has shown that perennial mite exposure is the single most important cause of sensitization in patients with asthma worldwide, and the cause of asthma in subjects with mite allergy.⁷

Researchers have also concluded that Der p1 concentrations of > 2 mg in a gram of dust can cause an allergic reaction.⁸ Ten micrograms in a gram of dust is enough to cause an acute attack. Measurements taken in homes around the world have found levels higher than these, especially in carpets, pillows, beds and furniture. The places where people sleep may contain enough allergens to trigger acute allergic reactions.

A study of 60 children with physician-diagnosed asthma, a positive skin-prick test response to house dust mites (HDM) and a positive bronchial provocation test result with HDM allergen extract was carried out to see if reducing dust mite allergen concentrations would reduce the need for asthma medication. In the active treatment group (which used special mattress and pillow encasings), the daily dose of inhaled steroids was reduced by at least 50% in significantly more children in the active group than in the placebo group (73% vs. 24%, $p < 0.01$) after 12 months.⁹

Other studies have also shown that reducing dust mites and their allergens using simple prevention measures in childhood may reduce the risk for later development of asthma and allergies.^{10,11}

FRESHEASE FOAM

FreshEase Foam is a polyurethane foam that contains Ultra-Fresh, an antimicrobial treatment that is applied during the manufacturing process to limit the growth of bacteria and fungi. Apart from its efficacy in preventing the growth of bacteria and fungi, Ultra-Fresh treated articles create an inhospitable environment for dust mites,

significantly reducing their numbers and thus playing a role as part of a general program of dust mite control in the home.

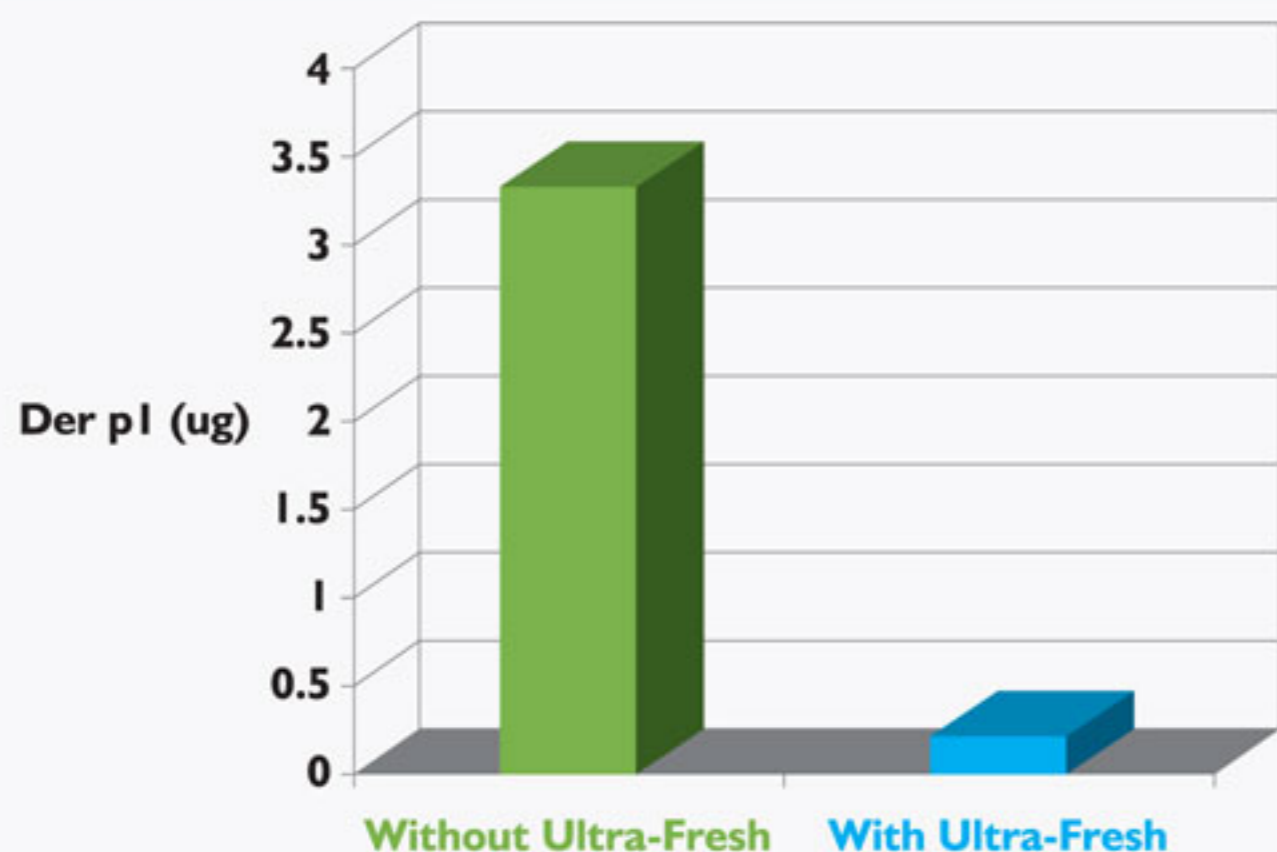
Ultra-Fresh

Ultra-Fresh is an antimicrobial treatment applied during manufacturing to add a powerful benefit to many different products. Originally intended for use only on fabrics, it has, over its 50 years of ever-growing acceptance, found uses in a much wider range of materials – plastics, mattresses, paints and flooring among them. It is an effective treatment because it attacks the problem at its source – it is part of the product, a key ingredient of the materials from which the product is made.

Evidence for Dust Mite Control

A study was conducted in Australia whereby 21 mattresses used for a minimum of two years were collected. Seventeen mattresses had been treated with Ultra-Fresh in the foam, two had no treatment and two had been treated with a competitive product. These mattresses were sent to an independent lab for assessment. A surface area of approximately 0.8 m² on each mattress was vacuumed for two minutes with a vacuum containing a special Hepa filter that would trap the dust and allergens present. The dust was then assessed for levels of Der p1. A summary of the findings is shown in **Figure 1**.¹²

Figure 1. Der p1 Allergen Levels Recovered From Mattresses With and Without Ultra-Fresh Treatment – Australian Trial



In other studies conducted in Belgium, a known number of mites (n=50) were placed on a Ultra-Fresh treated sample of polyurethane foam and compared against a control sample which was identical to the treated one in every manner except it did not contain Ultra-Fresh. These samples were then incubated under conditions ideal for dust mite growth and proliferation. At the end of six weeks, the number of mites on each were counted. **Table 1** shows the results of these tests, indicating the efficacy of Ultra-Fresh treated polyurethane foam.¹²

Table 1. Efficacy of Ultra-Fresh in Reducing Dust Mites

Test (Polyurethane Foam)	Number of Mites	
	Untreated	Treated
1. 0.37% Ultra-Fresh PF-1	1779	5
2. 0.38% Ultra-Fresh DW-30	200	2
3. 0.1% Ultra-Fresh MS-25	1654	0

Safety of Ultra-Fresh

All Ultra-Fresh products are registered with the U.S. Environmental Protection Agency (EPA). A registration is only granted by the EPA after large amounts of chemical and toxicological information and environmental safety data have been submitted and reviewed.¹²

Other Benefits

Ultra-Fresh treated products are odorless, resistant to deterioration, discoloration and degradation, and limit the growth of bacteria and fungi. The Ultra-Fresh treatment also lasts for the useful life of the product it is applied to.¹²

IN SUMMARY

Health experts around the world agree that allergies caused by dust mites are a serious health problem today. Ultra-Fresh treated products such as FreshEase Foam™ create an inhospitable environment for dust mites, bacteria and fungi. FreshEase Foam™ can therefore be used as part of a general program of allergen management in homes.

References: 1. WHO Asthma Factsheet. Available at <http://www.who.int/mediacentre/factsheets/fs307/en/index.html>. Accessed February 20, 2012. 2. Malaysian Clinical Practice Guidelines on Management of Adult Asthma. Available at <http://www.asthma-acm.com.my/pdf/boehring.pdf>. Accessed February 20, 2012. 3. Allergy Center of Malaysia. Asthma. Available at <http://www.allergycentre.com.my/asthma.html>. Accessed February 20, 2012. 4. Nadchatram M. *Tropical Biomedicine* 2005;22(1):23-37. 5. Sporik R, et al. *New Engl J Med* 1990;323:502-507. 6. Third International Workshop on Indoor Allergens and Asthma. *J Allergy Clin Immunol* 1997;100:\$1-\$24. 7. Platts-Mills TAE, et al. *Am J Respir Crit Care Med* 2009;180:109-121. 8. Platts-Mills TAE, Chapman MD. *J Allergy Clin Immunol* 1987;80(6):755-775. 9. Halken S, et al. *J Allergy Clin Immunol* 2003;111:169-176. 10. Arlian LG, Platts-Mills TA. *J Allergy Clin Immunol* 2001;107(3 Suppl):S406-413. 11. Halmerbauer G, et al. *Pediatr Allergy Immunol* 2003;14:10-17. 12. Data on file. Thompson Research Associates.



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