



Malaysian Rubber Export Promotion Council

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**COMMENTS TO
THE JOINT COMMITTEE ON PUBLIC HEALTH COMMONWEALTH OF
CONNECTICUT
ON HOUSE BILL 05347 REGARDING THE USE OF LATEX GLOVES IN FOOD
BUSINESSES**

*By Dr. Esah S. Yip, U.S. Director
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Washington, D.C.
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I would like to take this opportunity to comment on Bill 5347, which would prohibit the use of all latex gloves in food businesses.

Based on available scientific data, I believe that there is insufficient evidence to support the adoption of House Bill 05347. If approved, the result could have unintended and negative consequences to consumer health and food safety.

First, let me introduce myself. I am Dr. Esah S. Yip, the U.S. director of the Malaysian Rubber Export Promotion Council (MREPC). The MREPC is a non-profit organization serving as an education and information center focusing particularly on gloves. We work closely with standard setting and regulatory authorities such as the American Society for Testing and Materials (ASTM) and the U.S. Food and Drug Administration (FDA), and with other governmental organizations, and trade, consumer and public interest groups.

I have spent 30 years conducting research on latex and rubber products at the Rubber Research Institute of Malaysia, one of the world's largest research institutes on a single crop. I have authored and co-authored many papers concerning natural rubber and presented scientific findings at many international conferences on natural rubber latex and allergy.

From this perspective, I would like to provide information on available scientific data to support my position. In considering whether to continue the use of natural rubber latex gloves in food handling, I would like to bring to the attention of Members of this Committee the following:

1) No definitive positive relationship has been established between the use of natural rubber latex gloves and allergic reactions in consumers eating food prepared by workers wearing latex gloves.

The main goal of HB 05347 is to protect food consumers who may be sensitive to latex, or who may develop a latex allergy. However, there is little evidence to suggest an unacceptable consumer safety risk if foods are prepared using natural rubber latex gloves.

For example, in April 2002, at the Conference on Food Protection (CFP) – an organization that profoundly influences model laws and regulations among all government agencies and minimizes disparate interpretations and implementation – the FDA reported that although there were self-reported cases of food-mediated latex allergies were received from consumers in late 2000 and early 2001, these cases “*are not clinically verified through medical records and it is possible that some of the reactions described could have been due to consumption of foods that cross react to latex protein (e.g. kiwi, bananas, buckwheat, stone fruits, potatoes, tomatoes, sweet pepper, chestnuts, spinach, etc.)*.” The CFP concluded that there was much uncertainty about allergens being transmitted from latex gloves and their effects on consumers, and there was a need for more studies on this matter.

In August 2003, the Additives and Ingredient Subcommittee of the Food Advisory Committee to the FDA’s Center for Food Safety and Applied Nutrition (CSFAN) conducted a two-day hearing on this issue. After gathering and thoroughly examining information from independent experts and interested parties from the public, the Subcommittee reached a consensus and concluded: “*The evidence is suggestive of a weak positive relationship between the use of natural rubber latex gloves and food-mediated latex allergic reactions. The data linking the presence of these [latex] proteins in foods to allergic reactions is based primarily on anecdotal evidence, and is very weak.*”¹

With very little scientific evidence to support that the use of natural rubber latex gloves in food preparation causes allergic reactions through food ingestion, I believe any ban on natural rubber products is unwarranted.

Furthermore, as compared to latex gloves, the threat and danger posed to sensitive consumers by ingredients in foods such as milk, eggs, peanuts, tree nuts, wheat, soy, fish and shellfish are much more serious, given that they have been reported to cause more than 150 deaths annually, peanut allergy being the most common one²⁴. On the other hand, there is no reported death caused by latex allergy through food ingestion. The call for banning latex is really not justified without any strong scientific evidence showing that it is a real public health problem.

2) Advances in manufacturing technology have reduced the risk of allergy from latex gloves.

A small portion of the general population, about 1 percent², is sensitive to the proteins found in latex. Allergic reactions can range from mild symptoms, such as hives, hay fever and itchy eyes, to asthma, and in very rare cases, anaphylaxis. However, not all who are sensitised are necessarily allergic.

The problem of latex allergy first arose in health care settings, attributable to the use of an older generation of latex gloves where there was no control over protein levels. It is widely recognized that the cause of latex protein sensitization among healthcare workers was due to the use of these high-protein powdered gloves.

Through years of research on latex protein and advances in manufacturing technologies, the protein content of latex gloves has now been considerably reduced²⁵. While the older generation of latex gloves could have protein content as high as 2,000 micrograms per gram of glove, the current generation of latex gloves has levels as low as 50 micrograms, and less, especially for powder free latex gloves (as estimated by the Modified Lowry Test).

Subsequent independent hospital studies in the U.S., Canada and Europe have demonstrated that switching from the older generation of high-protein, high-powder latex gloves to the low-protein, low-powder or powder-free gloves has resulted in a significant decrease in the incidence of latex allergies. More importantly, a number of studies, ten of which are cited here³, show that many latex allergic individuals wearing synthetic gloves can work alongside colleagues wearing the new improved low-protein latex gloves without suffering allergy symptoms.

Furthermore, the positive impacts of low-protein latex gloves leading to the decline in latex allergy incidences have been acknowledged in 2005 and 2007 by several renowned allergy researchers⁴ from the then Chairman of the Allergy Committee of the American Academy of Asthma, Allergy and Immunology (AAAAI), from NIOSH, University of Toronto as well as the Wisconsin of Medical College. It was pointed out by all of them that the decline is attributed to the availability of the improved latex gloves with vastly reduced residual protein/allergen levels. It was even suggested that the allergy epidemic seems to have been eliminated

As a matter of fact, organizations such as the National Institute for Occupational Safety and Health (NIOSH), the Occupational Safety and Health Administration (OSHA), the American College of Allergy, Asthma and Immunology (ACAAI), and the American Nurses Association do recommend the use of low-protein/ low-allergen options when latex gloves are used.

3) The potential health risks of non-latex glove alternatives.

Although HB 05347 intends to protect employees and consumers from latex allergies, the Committee should look at the available scientific data on (a) the barrier performance of the different types of gloves used in food handling to protect consumers against the transmission of diseases, and (b) the risks associated with toxic chemicals used in many synthetic gloves.

Barrier performance

The single most important reason food workers wear gloves is to protect consumers from infectious organisms or other contaminants on wounded or inadequately washed hands. Such contaminations could lead to desirable serious foodborne illnesses. The current FDA Food Code prohibits food workers from touching ready-to-eat food with

their bare hands and calls instead for the use of “suitable utensils,” including single-use gloves.

Of the three glove types most commonly used in food preparation -- natural rubber latex, vinyl and polyethylene – latex provides the most effective protection against viral and bacteria transmission. Vinyl and polyethylene gloves cannot make this claim.

Numerous studies testing gloves in health care settings have shown the superior performance of latex.⁵ For example, seven scientific studies (see chart below) published found vinyl gloves to be significantly inferior in barrier protection against viral transmissions compared to latex gloves. One study showed the failure rate in barrier performance of vinyl gloves during use to be as high as 60 percent compared to 0 to 4 percent for latex gloves. Polyethylene gloves are even less reliable than latex or vinyl, often splitting at the seams.

Studies on Comparative Barrier Performance of Gloves			
Author	Failure Rates (%)		
	Latex	Vinyl	Polyethylene
Korniewicz 1990 ⁶	7	63	
Korniewicz 2002 ⁷	2.2	8.2	
Klein 1990 ⁸	<1 ^a	22 ^a	40 ^a
	<1 ^b	56 ^b	94 ^b
Olsen 1993 ⁹	4.2-7.9 ^c	43	
Douglas 1997 ¹⁰	1.1 ^c	25-32 ^d 22-27 ^e	
Rego 1997 ¹¹	0-4	26-61 ^d 12-20 ^e	
Kerr (FDA) 2004 ¹²	4-10 ^c 9-17 ^f	33 ^f , 38 ^c	

Key: ^aNo Alcohol Content, ^bPretreatment with 70% alcohol as antiseptic, ^cpowder-free, ^dStandard vinyl, ^eStretch vinyl, ^fpowdered.

Dangers from toxic chemicals

Current scientific data shows that some non-latex disposable food gloves can pose health hazards for consumers and food workers. Many vinyl gloves, for example, are often manufactured with highly toxic phthalates such as di (2-ethylhexyl) phthalate (DEHP), which makes vinyl soft and pliable. DEHP content varies between 22 and 41 percent of glove by weight.¹³

Of particular concern in food-contact applications is the fact that DEHP can leach out of vinyl products, such as disposable gloves, food containers and wrappers. DEHP is

particularly soluble in fluids and oil-based products. It can easily contaminate liquids like drinking water and milk, or foods such as cooking oils, cheese, meat and fish.¹⁴

The dangers of DEHP are well documented in animal studies, which show it can cause testicular damage¹⁵, suppress or delay ovulation¹⁶, reduce kidney¹⁷ and liver function¹⁸, and cause respiratory distress¹⁹ and adverse effects on the heart.²⁰ Infants, children and pregnant women are much more sensitive than others to such adverse effects, the studies show. In July 2002, the FDA warned "precautions should be taken to limit the exposure of the developing male to DEHP."²¹

Spurred by concerns about the health hazards posed by food handlers wearing vinyl gloves, Japan's Department of Food Sanitation, acting on a recommendation by the country's Ministry of Health, Labour and Welfare, issued a directive in 2000 against the use of vinyl gloves with DEHP in food service kitchens.²²

The Ministry cited research by the Japan National Institute of Health Sciences demonstrating that "The DEHP in foods packed... using vinyl gloves was found to increase drastically when compared with that of the foods before packing," and "the use of PVC [polyvinyl chloride] gloves with DEHP caused a sharp increase in the level of this chemical in foods."²³

4) Environmental concerns

The disposal of synthetic gloves such as vinyl poses environmental hazards through the creation of dioxin, which the World Health Organization classifies as a "known carcinogen." Large amounts of dioxin are released into the air, water, and soil when vinyl is disposed of along with vinyl chlorides and hydrogen chloride. If it is buried, it persists for years in landfills, where toxic chemicals leach out, poisoning the soil and groundwater. The State of Maine, for example, passed a law in 2003 making it state policy to reduce the release of dioxin into the environment, with the goal, where feasible, of ultimate elimination. As of 1 January 2009, the State of California prohibits the manufacture and sales of children's toys or childcare articles containing more than 0.1% of DEHP. Latex, on the other hand, is environmental friendly, as it is obtained from rubber trees, a renewable resource, and latex gloves are biodegradable.

Conclusion

The body of available scientific data and literature does not support a ban on the use of natural rubber products in food handling. As clearly decided by the CFP, the CSFAN and others, much more scientific data is needed if banning were to be considered.

It is noteworthy that while the use of milk, eggs, peanuts, tree nuts, wheat, soy, fish and shellfish served in food has been estimated to result in death of more than 150 people annually from anaphylaxis to food in the U.S.²⁴, the most common cause being the peanut allergy, there is no reported death caused by latex protein allergy through food ingestion.

Understandably so, allergies to proteins from natural rubber latex and from many foods, as well as the health and safety risks associated with the inferior glove barrier protection and chemical contaminations are important considerations for consumer protection and food safety.

As you proceed with deliberations on HB 05347, may I respectfully suggest that an alternative to prohibiting the use of latex gloves by food handlers be considered? A more advantageous course would be to educate food service workers and their employers about the safe use of food service gloves and to be mindful of the one important purpose of using gloves, that is to provide food consumers maximum barrier protection against viruses and bacteria, thereby helps to minimize foodborne illnesses, which have been estimated to have caused about 130,000 hospitalizations resulting in 3000 deaths in the United States²⁶.

Thank you very much for the opportunity to comment on Bills HB 05347.

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"At that time (mid-1990s) latex allergy peaked, and 8% to 12% of people who used latex were sensitized to it. Now, that number is down to about 1%. This is mainly due to a change in the way latex gloves are manufactured...(which) has led to a 1000-fold drop in the allergen content of the gloves." – Kevin Kelly, (Chair of the Latex Allergy Committee for the American Academy of Asthma, Allergy & Immunology), *Health Link, Medical College of Wisconsin, August 2005.*

"Healthcare workers shown to be latex-sensitive were therefore provided with non-latex gloves, and their co-workers with low or non-powder latex gloves".... "These manoeuvres have reduced the prevalence of new latex-sensitive patients to a minimal degree and it appears that the epidemic has been eliminated." – Jordan N. Fink, Professor of Pediatrics, Allergy Division, Medical College of Wisconsin, *Business Briefing: Global Surgery-Future Directions, September 2005.*

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