

ISSUE 3

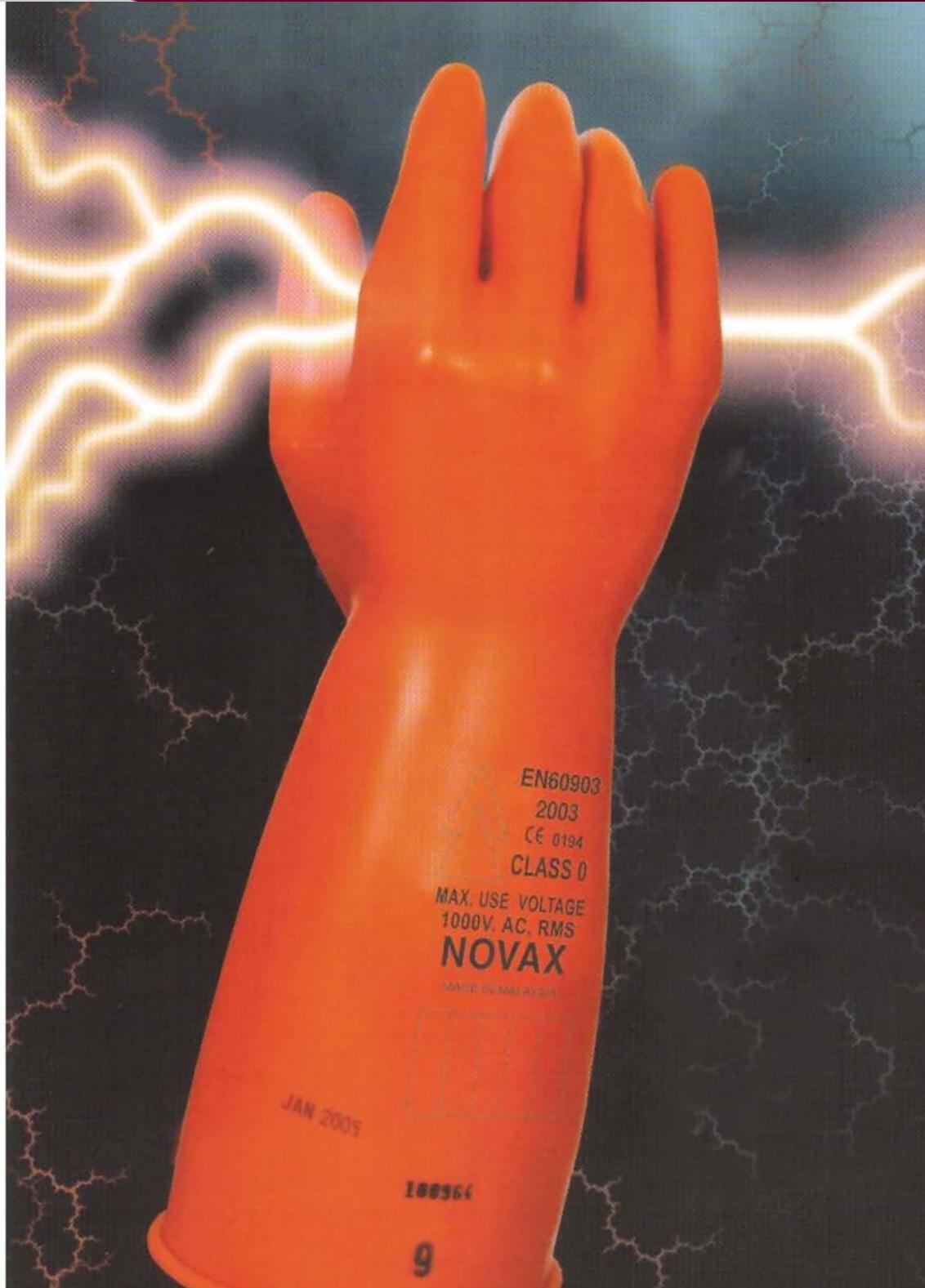
# STRETCH

A quarterly publication of the  
Malaysian Rubber Export Promotion Council

Third Quarter 2008 KDN: PP15077/05/2009 (021243) Volume 2

Malaysian  
Electrical  
Insulating  
Gloves  
for your

SAFETY



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**CEO of MREPC Dato' Teo Suat Cheng**

There is no gainsaying that Malaysia is currently the world's largest producer and exporter of latex examination gloves, and certainly has the capability to maintain its position. But that does not mean that its competency and capability are restricted to the production of such gloves only.

Gloves are generally used as a barrier for protection against contamination and infection, for cosmetic reasons and, in certain cases, for protection from injury or even death. Electrical insulating gloves fall under this last category, with ratings for safely handling electrical voltages up to 36 kilovolts, a massive voltage by any count. These specialized gloves are of critical importance in terms of safety to the wearer, and are rigorously inspected and tested to ensure their integrity and quality.

It is thus an achievement that a home-grown Malaysian utility glove manufacturer ranks favourably among the ten or so manufacturers in the world for producing such electrical insulating gloves, and whose product is well accepted in the USA, Europe and elsewhere. This clearly serves as an example that not only is diversification into value-added products a desired goal of the Malaysian rubber product manufacturing industry, but also that, in such endeavours, the local industry is able to stand tall among the best in the world, if determination is not lacking.

There are many more such examples of excellent Malaysian rubber product manufacturers, and STRETCH hopes to feature some of these in subsequent issues.



## 59<sup>th</sup> China International Medical Equipment Fair (CMEF), Shenzhen, China (18 - 21 April 2008)

The China International Medical Equipment Fair (CMEF) is a biannual event held in spring and autumn of each year. It is considered to be the largest healthcare exhibition for the Asia Pacific region. MREPC participated in the 59<sup>th</sup> CMEF held in spring in Shenzhen together with three rubber medical devices manufacturers, namely Hartalega, Uro Technology and TG Medical.

This event occupied 89,000 sq. m of exhibition space in 9 halls, with over 2000 exhibitors from 17 countries. There were 12 international pavilions. Participants in the international pavilions included Malaysia (led by MREPC), Ireland, USA, France, Canada, United Kingdom and Singapore. More than 50,000 trade visitors, representing the medical and healthcare industries from China and 64 other countries, attended the show.

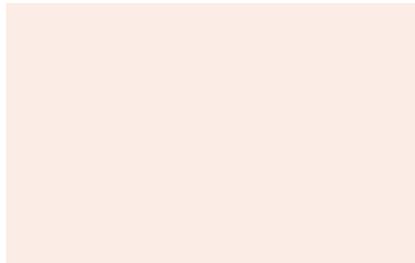
The CMEF Congress and the 6<sup>th</sup> International Components Manufacturing Design Show (ICMD) were held in conjunction with the exhibition. Various seminars and forums on investment, certification, technology development and design innovations relating to medical devices were also held.

Most of the enquiries received during the fair were from China. Other enquiries came from countries such as Hong Kong, Taiwan, Germany, Spain, United Kingdom, the USA, India, Singapore, Egypt, Syria, South Africa and Russia. The majority of enquiries from the Chinese visitors pertained to gloves. Besides Malaysia, there were 12 other rubber medical devices companies participating in the show and these were all from China. Shijiazhuang Hong Ray Group, reputed to be the largest glove manufacturer in China, also participated in the show.

With more than 80,000 hospitals in China, the potential to export rubber medical devices to China is high.

## 15<sup>th</sup> HOSPITALAR, Sao Paulo, Brazil

(10 - 13 June 2008)



HOSPITALAR, an exhibition usually held in June every year, is considered to be the largest multi-sector healthcare trade fair in Latin America. The 2008 event held in Sao Paulo occupied 75,000 sq. m of exhibition space in 5 halls, with 1,114 companies from 33 countries participating. There were 12 international pavilions located in the Green Hall. Around 78,000 trade visitors, representing the medical and healthcare industries from the South American continent and 70 other countries, attended the show.



*Some of the Malaysian participants at HOSPITALAR*

Having consolidated itself as the largest healthcare forum in Latin America, HOSPITALAR 2008 hosted 59 simultaneous events, including congresses, workshops and sector meetings, which focused on management and optimization of financial and human resources in healthcare services. ODONTOBRASIL, DIAGNOSTICA, HOSPFARMA and REHABILITATION were also held in conjunction with the exhibition.



*Ms. Low of MREPC attending to visitors*

MREPC led four Malaysian rubber medical devices manufacturers, namely Kossan, Latexx Partners, Rubberex and Hevea Medical, to participate in the fair.

With an estimate of 13,500 hospitals in South America, the potential to export rubber medical devices to South America is good.

The next HOSPITALAR in 2009 is expected to be held from 2 to 5 June. MREPC will liaise with Matrade on details and keep Malaysian manufacturers informed accordingly.



MREPC executive Raj attending to visitors

## Reifen 2008, Essen, Germany

(20 - 23 May 2008)

Two Malaysian manufacturers, Goodway Rubber Industries Sdn. Bhd. and Sun Rubber Industry Sdn. Bhd., participated at Reifen 2008 together with MREPC. Trade enquiries received by MREPC and the Malaysian manufacturers during the exhibition were mainly for tyre retreads and retreading materials (including cushion gum, orbitreads, camelbacks and repair rope), pre-cured treads and new tyres.

Reifen 2008, the 25<sup>th</sup> International Trade Fair for Retreading, New Tyres, Tyre Trade, Tyre and Chassis Technology, is a biennial trade fair. The show is regarded as the biggest and most important trade fair for the tyre industry, especially for new tyres and tyre retreading businesses in Europe. The show attracted the participation of 576 exhibitors from 40 countries, and more than 18,000 trade visitors from over 80 countries.

Reifen provided a platform for local manufacturers from the tyre retreading industry to showcase their products, gauge the market for retreads and retread materials in the European market and interact with companies in the EU as well as from Eastern Europe, the Middle East and Africa.

## Hospimedica 2008, Sydney, Australia

(13 - 15 May 2008)

Held for the first time, Hospimedica Australia 2008 showcased a comprehensive range of equipment, products, solutions and services specifically for the healthcare industry.

MREPC provided stand arrangements and booth designs for the participation of three Malaysian glove manufacturers at the exhibition, namely Top Glove International, Hartalega Sdn. Bhd. and Kossan Latex Industries Sdn. Bhd.



S.P. Lee of Kossan attending to visitors

The participation at Hospimedica 2008 provided manufacturers with a platform to establish business contacts with potential buyers and increase access to the Australian market. Most of the trade enquiries were received from manufacturers, agents and buyers from Australia and New Zealand.

# RUBBER PRODUCT TRADE STATISTICS

## Major Destinations of Malaysia's Rubber Product Exports (RM'000)

Country	January-June 2008	January-June 2007	% Change	% Share (2008)
<b>EU-27</b>	1,686,016	1,596,480	5.6	31.8
<b>USA</b>	1,307,837	1,237,386	5.7	24.6
<b>ASEAN</b>	442,079	436,257	1.3	8.3
<b>Japan</b>	257,438	282,720	-8.9	4.8
<b>Hong Kong, S.A.R.</b>	193,324	180,939	6.8	3.6
<b>Australia</b>	172,598	147,347	17.1	3.3
<b>Brazil</b>	177,290	122,600	44.6	3.3
<b>China, P.R.</b>	133,015	118,817	11.9	2.5
<b>Canada</b>	91,888	84,799	8.4	1.7
<b>South Korea</b>	67,860	68,298	-0.6	1.3
<b>Taiwan</b>	51,366	50,153	2.4	1.0
<b>Turkey</b>	59,392	64,752	-8.3	1.1
<b>Subtotal</b>	<b>4,640,103</b>	<b>4,390,548</b>	<b>5.7</b>	<b>87.3</b>
<b>World Total</b>	<b>5,309,275</b>	<b>5,002,745</b>	<b>6.1</b>	<b>100</b>

Source: Department of Statistics, Malaysia

## Malaysia's Exports/Imports of Rubber Products (RM'000)

	Exports		Imports	
	2008	2007	2008	2007
<b>January</b>	925,775	828,885	249,324	201,331
<b>February</b>	882,574	722,157	192,571	152,080
<b>March</b>	933,783	933,729	263,838	212,695
<b>April</b>	839,911	817,909	194,677	207,134
<b>May</b>	899,315	834,167	217,959	210,603
<b>June</b>	827,917	865,895	200,135	213,095
<b>January-June</b>	<b>5,309,275</b>	<b>5,002,745</b>	<b>1,338,504</b>	<b>1,196,938</b>
<b>% Change (January-June) 08/07</b>	<b>6.1</b>		<b>11.8</b>	

Source: Department of Statistics, Malaysia

# What Is REACH?

- The European Union's (EU) new chemicals legislation, REACH (Registration, Evaluation, Authorisation and Restriction of Chemicals), came into force on 1 June 2007. The EU's objectives in implementing REACH are to protect human health and the environment from exposure to chemicals, while also maintaining and enhancing the competitiveness and innovative capacity of its chemicals industry.
- REACH requires industry (producers, importers and users of chemicals) in the EU to provide information on the chemicals they produce or import and the risks associated with their use. This will allow the users to choose safer alternatives. It will also greatly enhance the protection of people's health and the environment because of strict authorization procedures. Industry in turn will have an interest in investing in innovation of new safe chemicals as against the current trend of using existing chemicals.
- The burden of proof is now with the industry. It will be responsible to evaluate, register and authorize not only all chemical substances but also their use down the supply chain. Downstream users are those that make industrial or professional use of chemicals. Some of them mix chemicals to make preparations, articles or use them otherwise in their business.
- According to REACH, most chemicals (chemical substances) must be pre-registered. Any article or product that releases significant amounts of hazardous substances during normal use or disposal also requires registration. The REACH system is substance based. It is the substances in preparations that will need to be registered and not the preparation itself.
- The first REACH obligation by the industry will be the pre-registration of substances which will take place from 1 June 2008 till 1 December 2008. Between this period, EU manufacturers and EU importers need to provide some limited information on each existing (so-called phase-in) substance for pre-registration with the European Chemicals Agency (ECHA). All chemical substances, manufactured or imported into the EU in quantities of one (1) tonne or more per year, will be subjected for mandatory pre-registration and registration.

- Pre-registration of phase-in substances allows companies to benefit from the extended registration deadlines (2010, 2013 or 2018). The objective of pre-registration is to facilitate sharing of data between registrants, where possible, in order to reduce unnecessary testing and to decrease costs for the industry.
- It is to be noted that companies that manufacture substances, formulate preparations or produce articles outside the EU cannot (pre-) register substances. Malaysian companies, however, can nominate a legal representative within the EU to carry out pre-registration. This representative could be the importer, a legal entity or an 'Only Representative' (OR). Their EU-based importers are then relieved from the duty to (pre-) register.
- There is no cost to pre-registration. Only the actual registration will entail a fee and it differs depending on the tonnage exported. Costs will also be lower if the company is an SME.
- Although REACH places the responsibility on EU-based entities - manufacturers, importers and users of chemicals for registration - Malaysian exporters to the EU will be indirectly affected, as substantial information will be required by the EU importers for registration and authorization purposes. Products of Malaysian companies (be it an article, intermediate, precursor, chemical or finished product) which are exported to the EU must be registered under REACH.
- The Malaysian rubber product industry is advised to check whether the chemicals they manufacture/import/use are covered or exempted from the regulation and decide on the route for pre-registration, whether through a legal entity, importer or an Only Representative.
- A company that fails to pre-register a phase-in substance by 1 December 2008 may neither import nor manufacture it after that date until it has fully registered the substance with the ECHA. The full registration is a more complicated process which includes submission of Material Safety Data Sheet (MSDS), Chemical Safety Report (CSR) and Chemical Safety Assessment (CSA).

**Note:** The above information has been extracted from presentations made at a Seminar on REACH held in MIDA on 19 June 2008. Detailed information on REACH can be found on the website of ECHA: <http://echa.europa.eu>

(Article credit: R. Krishnasamy - Krishnasamy is the Director of Industry Relations and Public Affairs Division, MREPC)

Rubber Product Manufacturers Now Qualify for

## MIDF Soft Loan for Automation & Modernization

Rubber product manufacturers may now apply for the Malaysian Industrial Development Finance Berhad (MIDF) Soft Loan Scheme for Automation and Modernization (SLSAM). The original scheme, launched in February 2007, did not include the rubber product sector. MREPC brought this to the attention of MITI and MIDA, seeking their assistance to include the rubber product sector under the scheme.

The purpose of the scheme is to encourage industries to modernize and automate their manufacturing processes, improve production potential and capacity, and assist companies in minimizing dependence on labour-intensive activities and foreign labour, diversifying into higher value-added activities and rationalizing and streamlining their operations through mergers and acquisitions.

In order to qualify for the scheme, companies must be incorporated under the Companies Act 1965 with at least 60 percent equity held by Malaysians, possess valid business licences, and be in operation for at least 2 years.

Each eligible company is given a loan ranging from RM100,000 to RM5 million. This is a 5 to 7 years' loan which includes a grace period of up to 1 year with an interest of 4% per annum.

Successful applicants are able to claim the following expenses:

### i. Industrial Adjustment Financing for

- Purchase of new or reconditioned (age not more than 5 years) machinery and equipment;
- Purchase of software and computer peripherals related to the industrial adjustment process;
- Purchase of new machinery, plant and equipment for the purpose of diversification into higher value-added activities;
- Cost related to the installation, commissioning and related training as well as maintenance of the machinery; and
- Expenses to undertake services related to mergers and acquisition (M&A) such as registration fees and payment for services by investment bankers.

### ii. Automation Financing for

- Purchase of new or reconditioned (age not more than 5 years) automation related machinery and equipment;
- Costs related to the installation, commissioning and related training as well as maintenance of the machinery; and
- Purchase of software and computer peripherals related to the development of the automation system.

Applicants have to undergo an evaluation process involving the submissions of the latest audited financial statement, updated management account and pro-forma invoice of machinery to MIDF.

Upon successful evaluation, applicants are required to complete a form to be submitted to the officer-in-charge at MIDF at the following address:

#### **Development Finance Division**

Malaysia Industrial Development Finance Berhad,  
Level 15, Menara MIDF, 82, Jalan Raja Chulan,  
50200 Kuala Lumpur.

**Manager in-charge:** Syed Azmi b. Syed Ariffin

Tel : (603) 2173 8888 (GL)

Tel : (603) 2173 8888 ext. 8605 (DL)

Fax : (603) 2173 8877

You can visit the website of MIDF at  
<http://www.midf.com.my/main> for more information.

(Article credit: Dr. C.S. Chew - Dr. Chew is the Director of the Corporate Planning and Research Division, MREPC)

### Why Leave a Potential Market Untapped?

Come join MREPC-led marketing missions

**MREPC's incentive available (SBIM3)**

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*Terms & Conditions apply*

For more details on SBIM3, kindly refer to

[www.mrepc.com/trade/incentives\\_mrepc.php](http://www.mrepc.com/trade/incentives_mrepc.php)



Pedas, a quaint little town several kilometres south of Seremban, the capital of the Malaysian state of Negeri Sembilan, is perhaps better known for its natural hot springs, and delectable durians (regarded as the king of fruits in Malaysia) from its surrounding orchards. But nestled among one of several industrial zones at Chembong Phase II Industrial Estate may be found the nondescript façade of G.B. Industries Sdn. Bhd., a manufacturer of gloves for general-purpose and industrial use. From this innocuous-looking plant comes a value-added rubber product, namely electrical insulating gloves, which, according to its youthful chief executive officer, Ong Boon Kee, should stand Malaysia proud as a source for such gloves. These gloves are an indispensable safety product for those in the electrical industry. This foray into a highly-specialized rubber product was the brainchild of Ong, and reinforces the belief that opportunities are there if one knows where to look.

G.B. Industries began operation in 1987 in Subang Jaya in the state of Selangor and rapidly became one of the country's leading exporters of rubber household and industrial gloves. With its production enjoying an encouraging uptrend, the company acquired a six-acre site at its present location to consolidate its proven product lines. Several years back, with a pocketful of experience in the manufacture of gloves, Ong set out in his quest to move up the value chain by engaging in the production of electrical insulating gloves.

## WORKING SAFELY WITH ELECTRICITY

Electrical insulating gloves are personal protective equipment to prevent accidental contact with energized parts, and are mainly used by linesmen involved in the maintenance of power supply lines. They form the first line of protection against electrocution, and are currently classified into six classes, based on the maximum voltage the glove can withstand, viz.:

- Class 00 Low Voltage Glove (up to 500 volts maximum)
- Class 0 Low Voltage Glove (up to 1000 volts maximum)
- Class 1 High Voltage Glove (up to 7,500 volts maximum)
- Class 2 High Voltage Glove (up to 17,000 volts maximum)
- Class 3 High Voltage Glove (up to 26,500 volts maximum)
- Class 4 High Voltage Glove (up to 36,000 volts maximum)

With assistance from the Malaysian Technology Development Corporation (MTDC), Ong signed an agreement with the Australian technology owner for the manufacture of these gloves. Fine tuning was carried out with the help of a local consultant, which culminated in successful and excellent insulating gloves. These gloves must incorporate high dielectric and physical strength, along with flexibility and durability. For effective performance, they should meet and/or exceed the requirements of the current American Society for Testing and Materials (ASTM) D120 and EN 60903 specifications. GB Industries' electrical insulating gloves are marketed under the company's own brand "NOVAX". Ong's conviction that he had stumbled upon and developed a very good product influenced him in making a business decision not to sell these gloves as an OEM manufacturer. Initially, Ong targeted his gloves at meeting the Australian standard. In fact, he has pushed his own limits by ensuring his gloves meet more than the Australian standard, and today they meet both the United States and European standards as well. "Our electrical insulating gloves are as good, if not better, than any from Europe or the United States, as demonstrated by test results," proclaims Ong. "In fact, test results consistently show that our gloves surpass the requirements spelt out in international standards, and we wish to improve upon this to convince our existing and potential customers that we are offering a consistently high-quality product," adds Ong. All electrical insulating gloves are tested in-house, as well as by the customers upon receipt.

Ong believes that GB is the only home-grown Malaysian supplier of electrical insulating gloves, among the ten or so global players. It currently supplies worldwide, with strong growth in the United States. It is an accolade to GB that its gloves are readily accepted in the USA, when some from Europe are unable to penetrate this market. The fact that its gloves are air-flown monthly into the USA speaks volume of the acceptance of its products in that country. Currently, it manufactures gloves from Class 00 to Class 2. By the end of the year, gloves of the highest class, i.e. Class 4, will be available from GB. This should propel GB as one of the top players in the world market in terms of such insulating gloves. In terms of percentage, electrical insulating gloves currently constitute a mere 5% of GB's total glove production, but Ong intends to push this to 10-20% in the near future, and the company is enjoying a healthy growth in this respect. It is also another feather in GB's cap that the national electricity supplier, Tenaga Nasional Berhad, recently became a customer of the company for electrical insulating gloves, while earlier they had sourced these from overseas.

**“Test results consistently show our electrical insulating gloves surpass international standards. ”**

- CEO Ong Boon Kee, GB Industries Sdn. Bhd.



**Ong (left) showing Minister of Plantation Industries and Commodities, Datuk Peter Chin Fah Kui (right), his electrical insulating gloves**



As to his philosophy in successfully competing in the world market, Ong says we have to compete on price and delivery, coupled with better performance in the products. To him, it is most important to find a good and reliable partner(s) to work with. The market for household gloves is concentrated in the United States and the European Union, whilst growth may be expected in emerging markets in Eastern Europe and Latin America. He is looking forward to the day he is able to market his household gloves in China, and his insulating gloves in Japan.

"All the company's success would not have been possible without the dedication of each and every member of the staff," says Ong. "Every effort is made to ensure every employee has a sense of belonging, and personnel and human resource development is very much part and

parcel of the firm's culture. The success of the company has been the direct result of its corporate values that recognise team spirit, commitment and innovation," he adds. Like all progressive and forward-looking companies, GB strives to achieve maximum customer satisfaction by providing quality products and services. As the company grows in strength, it has embarked on extensive R&D to establish continuous upgrading of product quality, cost efficiency and new product development.

For more details on G.B. Industries Sdn. Bhd. and its products, visit its website at <http://www.gb-intl.com>.

# NEW STANDARD FOR FOOD GLOVES

The American Society for Testing and Materials (ASTM) has published the long-awaited new standard specification for food service gloves, the ASTM D 7329-07, after efforts were made over a period of several years.

Unlike medical gloves, food service gloves are not regulated by the U.S. Food and Drug Administration (FDA). However, the FDA prohibits bare hand contact with ready-to-eat food, because a wide range of communicable diseases and infections may be transmitted by infected food service employees to consumers through food or food utensils. The most commonly transmitted pathogens included Norovirus among others, according to the Centers for Disease Control (CDC). These pathogens are extremely infectious through the faecal oral route, and they are difficult to control in an infected person. Hand washing alone has been shown to be insufficient to reduce the transmission effectively. Therefore, food service workers must use a physical barrier between their hands and any food product that will not get cooked or heated after handling, which include the use of gloves or suitable utensils. The FDA Food Code also requires the gloves used to be safe for contact with food, and does not allow migration of deleterious substances, colours, odours or tastes to food.

## New Standard Specification for Food Preparation and Food Handling (Food Service) Gloves by ASTM

| By Dr. Esah Yip |

While standards for medical gloves have been well established by the ASTM for many years, the standard specification with regards to food service gloves has only been just developed. The specification in this standard is intended to serve as a referee and a guide to permit obtaining gloves of a consistent performance, but it does not purport to address all of the safety concerns associated with the glove's use, according to the ASTM.

Five different categories of gloves are covered in the new standard, namely, (i) natural rubber latex, (ii) nitrile, (iii) polychloroprene, (iv) vinyl and (v) polyethylene which included the subcategories of (a) low density, (b) high density and (c) cast polyethylene.

The parameters concerned involve freedom from holes, dimensions, physical properties, powder level, powder-free residues, and total/ antigenic protein contents for latex gloves. While tests and values resemble those of the medical glove standards for each of the respective glove types, the hole detection test used for the polyethylene gloves is a modified procedure based on the standard test D5151 for all other gloves. The reason for this is because polyethylene gloves are not elastic and hence would not be able to undergo the same test condition stipulated in the D5151 test. The test procedure as stated in D7246-06 has therefore to be used. In fact, this particular standard test method has specially been developed for this purpose. AQL for all gloves is 2.5 at inspection level of G-1.

For performance requirements, dimensions and tolerances as well as the physical requirements, values are very similar to those specified in D3578 for rubber examination gloves, D5250 for vinyl, D6319 for nitrile and D6977 for polychloroprene. A similar standard for polyethylene gloves is currently not yet available for reference purposes. A summary of the physical requirements is as shown in Table 1 below:

**Table 1a: Physical Property Requirements for NRL, Nitrile, Vinyl (PVC) and Polychloroprene Gloves**

Property	NRL	Nitrile	Polyvinyl	Polychloroprene
Tensile Strength (MPa, min.)	18	14	9	14
Tensile Strength, Aged (MPa, min.)	14	14	9	14
Ultimate Elongation (%)	650	650	300	500
Ultimate Elongation (%) Aged	500	500	300	400

For polyethylene gloves, they are in three different categories: (a) Low density - LDPE, (b) High density - HDPE, and (c) Cast polyethylene - CPE. These gloves are generally thinner than those specified for the elastic gloves, and are also relatively longer. While the length ranges from 220 to 230 mm for other gloves, they range from 210 to as long as 300 mm depending on the type of polyethylene. Their physical requirements are summarized as below:

**Table 1b: Physical Property Requirements for Polyethylene Gloves**

Property	LDPE	HDPE	CPE
Max. Force at Yield (N/m - min.)	280	320	360
Max. Force at Yield, Aged (N/m - min.)	280	320	360
Ultimate Elongation (%)	500	500	300
Ultimate Elongation (%) Aged	500	500	300

As clearly indicated in the Scope of this Standard, it does not purport to address all of the safety concerns, if any, associated with its use. As such, it is important that users and the food industry should take note of the following points:

### **Barrier Protection**

Since the main function of wearing gloves is to prevent transmission of infectious pathogens, it is of utmost importance that the gloves used are able to provide effective barrier protection. A single glove hole can release tens of thousands of bacteria from overly moist internal glove surfaces. In addition, using gloves with hazardous materials can also be potential health risks to food patrons. Thus, the proper choice of food worker gloves can significantly impact product safety and integrity.

Since gloves made of different materials have different properties affecting their ability to provide barrier protection and other safety features, care and caution must be exercised to choose the appropriate gloves for use. With improved testing procedures for barrier performance of gloves, significant differences have often been revealed between glove types during use, even though the hole detection test done on some intact unused gloves did not show any difference (Table 2).

**Table 2: Studies on Comparative Barrier Performance of Gloves**

Researchers	NRL	Vinyl	Glove Failure Rate (%)		
			Polyethylene	Nitrile	Polychloroprene
Korniewicz. 1990	7	63	-	-	-
Korniewicz 2002	2.2	8.2	-	1.3	-
Korniewicz 2003	6.9	-	-	-	8.4 <sup>f</sup>
Korniewicz 2004	5.6	-	9.3	-	7.4
Klein 1990	< 1 <sup>a</sup> < 1 <sup>b</sup>	22 <sup>a</sup> 56 <sup>b</sup>	40 <sup>a</sup> 94 <sup>b</sup>	-	-
Olsen 1997	4.2 - 7.9 <sup>c</sup>	43	-	-	-
Douglas 1997	1.1 <sup>c</sup>	25 - 32 <sup>d</sup> 22 - 27 <sup>e</sup>	-	-	-
Rego 1999	0 - 4	26 - 61 <sup>d</sup> 12 - 20 <sup>e</sup>	-	1 - 3	-

**Key:**

- a - No alcohol use; b - Pretreatment with 70% alcohol; c - NRL powder-free gloves;  
d - Standard vinyl; e - Stretch vinyl; f - Combination of polychloroprene and nitrile.

It may be noted that both polyvinyl and polyethylene consistently demonstrated inferior barrier capability than other glove types.

### **Chemical Toxicity**

Synthetic gloves such as those of polyvinyl are often known to contain a highly toxic plasticizer, the di-ethyl hexyl phthalate (DEHP), which makes up between 22 and 41 percent of the glove by weight. DEHP is used to impart flexibility to the vinyl products.

Of particular concern in food-contact applications is the fact that DEHP can leach out of the vinyl products, such as disposable gloves, food containers or wrappers. It is particularly soluble in fluids and oil-based products. It can easily contaminate liquids such as drinking water and milk or foods like cooking oils, cheese, meat and fish.

The effect of DEHP on health is well documented in animal studies which show it can cause testicular damage, suppress or delay ovulation, reduce kidney and liver functions, and cause respiratory distress as well as adverse effects on the heart. Infants, children and pregnant women are much more sensitive than others to such adverse effects. In July 2002, the U.S. FDA warned that "precautions should be taken to limit the exposure of the developing male to DEHP."

Spurred by concerns about the health hazards posed by food handlers wearing vinyl gloves, the Ministry of Health, Labour and Welfare in Japan issued a directive in 2000 against the use of vinyl gloves with DEHP in food service kitchens. The Ministry cited research study demonstrating that "the use of PVC (polyvinyl gloves) with DEHP caused a sharp increase in the level of this chemical in foods."

The danger of phthalates has also led to several initiatives to curb their use in children's toys by the U.S. Consumer Product Safety Commission and the European Commission.

### **Latex Protein Allergy Concern**

The presence of excessive residual soluble proteins found in inadequately processed latex gloves in the 1980's was the cause of latex protein sensitization and allergic reactions in some sensitive individuals in the healthcare setting. Such high protein gloves should therefore be avoided. Advancement in technologies today has led to the production of low protein gloves with vastly reduced allergy risks, as demonstrated by many hospital studies today.

Although there have been some concerns about the use of latex gloves in food handling in giving rise to the problem, latex protein sensitization via food ingestion is believed to be exceptionally rare. The Additive and Ingredients Subcommittee of the Food Advisory Committee has examined this issue thoroughly with a panel of experts, in August 2003. They concluded that "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."

Finally, selecting gloves to be used in the food environment should be based on their ability to provide barrier protection against viral and bacterial transmission which could lead to harmful infections, as well as on their minimum impact in relation to any potential health hazards. Using gloves based solely on cost could impose a false sense of security if the gloves chosen do not enhance the expected food safety for patrons - in which case the donning of gloves would purely be cosmetic in nature. To this end, it may be noted that NR latex gloves are the only cost-effective gloves that are well acknowledged to provide the best barrier capability against transmission of infectious substances. They also offer great comfort and fit and high durability. There may be synthetic alternatives that have certain amount of assimilated NRL properties, but they are more costly.

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(Dr. Esah Yip is the Director of the MREPC USA office)

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*Chris Packham\* looks at whether natural latex gloves really represent a health hazard*

Much has been written about latex allergy, often referring to the "epidemic" that occurred from wearing natural rubber latex gloves. Unfortunately, some of what has been published doesn't correspond with the scientific evidence.

Natural rubber latex (which we will refer to simply as latex) was the original material used in gloves to protect against chemical and biological hazards. It was used for many years both in industry and the healthcare sector with virtually no allergy problems. The latex allergy problem first became significant shortly after healthcare providers brought in universal barrier precautions as a reaction to the threat from HIV and AIDS.

Of course, this resulted in a massive increase in demand for single-use, latex gloves, such that the existing manufacturers could not cope. The number of companies manufacturing these gloves increased rapidly and not all of the newcomers paid the same attention to quality as had previously been the case. Pressure on healthcare budgets also meant that purchasers were seeking cheaper alternatives.

## Dusty answer

Some manufacturers attempted to reduce the cost of their gloves by cutting manufacturing stages. The result was gloves with high free-protein and high free-chemical levels. These gloves were also more difficult to put on, so the makers added a powder "lubricant".

The powder granules, normally from epichlorhydrin cross-linked corn starch, have a surface to which latex proteins can easily attach themselves. Donning the gloves often sends these granules into the air where they can be inhaled. The inhalation can lead the user to become sensitised and they may suffer

Type I contact urticarial reactions (skin swelling and redness and asthma) when they come into contact with the latex afterwards. In rare cases, this reaction can develop into anaphylactic reactions that, very occasionally, can even be life threatening.

Many healthcare workers became sensitised and allergic to the latex proteins because of the massive use of these powdered latex gloves and, as a result, latex came to be considered as a potent allergen to be avoided at all costs.

Healthcare establishments in many countries adopted an almost panic-like reaction with a drive to replace latex completely. In many cases, the results were firstly to reduce the level of protection against biological hazards and secondly to introduce new skin problems from the new glove materials.

## The real risk

So perhaps what we need now is an objective review of the true facts about latex and the risks from using latex gloves and products.

In the first place, most skin problems from the use of the relatively tight-fitting single-use gloves is due to irritation as a result of the constriction. This can be resolved in many cases by the use of separate cotton gloves worn underneath the protective gloves.

Secondly, for the latex protein molecules to be inhaled they must first become airborne. On their own this is extremely unlikely, since these molecules are intensely "sticky" and will readily attach themselves to the nearest surface. The only way in which inhalation is probable is where they can attach themselves to a light particle that can itself become airborne, such as the glove powder. By eliminating the glove powder you can eliminate this route of exposure and the potential for sensitisation.

Thirdly, with a well manufactured latex glove these proteins will either have been removed or will be so tightly bound into the rubber of the glove that they are no longer bio-available (that is, they cannot be released to penetrate the skin or be inhaled). Thus there is then little or no potential for either sensitisation or allergic reaction.

So where does all this leave the employer trying to decide whether to use latex gloves or switch to an alternative material?

In the first place there never has been a significant problem with the reusable type of rubber glove or gauntlet. The latex allergy problem was restricted to the high free-protein, powdered, single-use natural rubber latex glove.

Tests have shown that single-use latex gloves manufactured to an appropriate standard contain so little of the proteins that can elicit an allergic reaction that they can safely be used, even in many cases by people who are already sensitised.

In Germany, studies show that the incidence of occupational latex allergy and asthma declined in line with the elimination of powdered latex gloves in healthcare. The gloves were not replaced with other materials but by un-powdered, low free-protein latex gloves.

## Hard to beat

Latex has properties that no other glove material can match. It provides superb protection against biological hazards, offers optimum dexterity and, because it stretches so well, ensures minimum wearer fatigue. The surface also provides excellent grip, particularly for holding wet objects.

Unlike many synthetic materials, it does not release toxic chemicals when incinerated. Natural rubber latex is produced from a renewable natural resource, the Brazilian rubber tree.

In conclusion, provided un-powdered, low free-protein latex gloves are being worn there is no reason to substitute them with other gloves. To do so may actually reduce the level of protection provided and increase the probability of skin reactions to the glove material. This could place an employer in a difficult position in the case of a compensation claim.

Where latex gloves are being used for chemical protection, it is important to identify the chemicals in question and whether this is the correct glove material. Manufacturers' literature can provide some basic guidance on this.

The packaging should stipulate the gloves are "powder-free" or "un-powdered". In general it is reasonably safe to assume that if the gloves are un-powdered, then they will also be low in free protein, but some manufacturers will state something such as "less than 50 ug/g free protein" or similar. Where this is not stated, you could ask the manufacturer. Most reputable manufacturers will provide the information, but where any doubts exist specialist advice should be sought.

It is important to realise that any glove failure can actually increase the potential for damage to health beyond that which would have occurred had gloves not been worn.

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## Sao Paulo, Brazil



*View of the busy highway from our hotel*

To travel to Sao Paulo, there are a few things you need to arrange before embarking on your trip. The first is the yellow fever vaccination. It costs RM300 a shot and is valid for a year. The second thing to remember is that you need a visa, if you are travelling on business. The third item to note is that if you are participating in a trade show, your exhibits might not reach the fairground. This is because there are strict rules regarding goods brought into Brazil (your luck plays a part). A particular manufacturer who sent its exhibits to the same fair, HOSPITALAR, two years in a row has had different experiences. Last year its exhibits reached the fairground; this year it was retained at the Brazilian custom.

Our flight from Kuala Lumpur to Sao Paulo took 23 hours, including a 4-hour transit in Amsterdam. On arrival at Sao Paulo airport, we took a cab

to our hotel, Holiday Inn Parque Anhembi. Fronting the hotel is a very busy highway. From my window, I could see the highway and traffic was heavy with trucks and cars zooming up and down the highway at all times of the day. (I was able to observe all day because I was suffering from jet-lag and could not sleep).

As with most foreign visitors who come to the city for business, we had a tight schedule which made it difficult for us to get to know the city. Hence the opportunity to sightsee Sao Paulo was very limited indeed, as most days were spent at the fairground. The fair started from 12.00 noon to 9.00 p.m. daily. However, we were fortunate to have industry members from Top Glove, Kossan and Hartalega to show us around Sao Paulo. My first taste of Brazilian breakfast was in this small eatery run by an Asian-looking couple who

spoke perfect Portuguese. It was fun pointing and gesturing to order our breakfast for lack of linguistic skill in Portuguese. We managed to have a hearty breakfast of sumptuous burger with chicken and a lot of cheese. My impression was that everything we ate seemed to be stuffed with cheese. They also served very divine lime juice there. The price was reasonable in that eatery.

Generally food in Sao Paulo was very expensive. It cost us RM50 to have lunch in the fairground canteen (chicken and fries set). My first experience in a taxi in Sao Paulo was heart-stopping. It made me rationalize why many famous F1 drivers are from Brazil. Do not take a cab if you have a weak heart. The near misses that I experienced in Sao Paulo made me appreciate our very lame Malaysian taxi drivers!



Downtown São Paulo

On the final day before our departure to Kuala Lumpur, I had a morning free to visit the famous Liberdade. It is home to the largest Japanese community outside Japan. Significant numbers of Chinese and Korean also live in the district of Liberdade. It is served by the São Paulo Metro. An estimated 300,000-600,000 Brazilians of Japanese descent live in the community. The entrance to Liberdade is marked by a nine-meter tall red torii (a Japanese arch that marks the entrance to Shinto temples) since 1974. This towering structure, situated on Rua Galvão Bueno, is a distinctive representation of the neighbourhood. I was among the paulistanos (citizens of São Paulo) that flock to the public square in Liberdade to purchase crafts and bric-a-brac at the weekly fair.

It was my first trip to the South American continent and I wished I had more time to explore, but this was not to be as work commitments dictated me to be back in Kuala Lumpur.

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(Article credit: Ms. Low Yoke Kiew - Ms. Low is a Senior Deputy Director with the Industry Relations and Public Affairs Division of MRPEC).

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We had our hot dog here for only 1 Rial which is equivalent to RM2.00.

The famous Liberdade square with the Metro station.



Public square in Liberdade. Opposite the square is a big crystal shop run by a Taiwanese couple, who spoke perfect Portuguese. We managed to grab some cheap crystal key chains and T-shirts.

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