

8 February 2012
Analyst

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Stocks under coverage

Company	Bloomberg Ticker	Call	TP (RM)
Top Glove	TOPG MK	Sell	4.10
Hartalega	HART MK	Neutral	8.00
Supermax	SUCB MK	Neutral	1.95
Kossan	KRI MK	Buy	4.70

Not the time to buy yet...

We are initiating coverage on rubber glove sector with an Underweight recommendation as we foresee global capacity surplus would continue to cap glove makers' profitability though headwinds such as strong latex costs and strong Ringgit have eased since 4Q11. Based on our estimates, the global glove industry's utilisation rate would drop further to 74% in 2012 and 2013 from 81%, 80% and 75% achieved in 2009, 2010 and 2011 respectively. We believe the existing consensus earnings forecasts for the industry are on the high side and market's optimism on strong and sustainable earnings recovery into 2013 might fade when 1H12 results fail to show improvement in terms of absolute profit per glove.

3 key determinants of the industry earnings don't seem to be in favour of the glove players yet...

- Rubber glove industry earnings are mainly determined by supply and demand factor, volatility in latex prices as well as the fluctuation of the Ringgit against the US dollar. We foresee a 13-26% earnings rebound in 2012 due the low base effect in 2011, rather than a sharp earnings recovery as we foresee global capacity surplus would continue to cap rubber glove makers' profitability. Based on our estimates, the global glove industry's utilisation rate would drop further to 74% in 2012 and 2013 from 81%, 80% and 75% achieved in 2009, 2010 and 2011 respectively.
- Furthermore, we expect latex price volatility to persist and anticipate it to trade between RM6.50/kg to RM8.00/kg over the next 2 years amid intermittent governments' intervention to stabilise the commodity price to safeguard the interest of the small holders. In the near term, we expect the latex price to rebound from its low of RM6.30/kg to RM8.00/kg by March 2012 as rubber estates start entering the wintering season in Feb-April, before softening to about RM7.00/kg by the end of the year.
- The third determinant of the industry earnings is the fluctuation of the Ringgit against the US dollar. We expect USD to weaken further as US Federal recently pledged to keep its interest rate low until late 2014 as well as indicating its willingness to implement another round of quantitative easing (QE) should the US economy falters.

Sell Top Glove and Buy Kossan, stay Neutral on Hartalega and Supermax

- Given our bearish view of the sector, we initiate coverage on Top Glove Corporation (Top Glove) with a Sell recommendation and target price of RM4.10, while recommend staying Neutral on Supermax Corporation (Supermax) and Hartalega Holdings (Hartalega) with a target prices of RM1.95 and RM8.00 respectively. Nevertheless, we do have one bottom-up Buy recommendation for Kossan Rubber Industries (Kossan) with a target price of RM4.70 as we anticipate the company to deliver stronger earnings growth due to its contract-manufacturing expansion and improved product mix.
- We value Top Glove based on its 6-year historical average PER of 17x, while applying 13x PER for Kossan and Hartalega, and 10x PER for Supermax, based on their respective historical PER band, historical discount to Top Glove and their expected earnings growth.

Underweight the rubber glove sector as the sector de-rating is imminent

- We recommend underweighting the rubber glove sector as stretched valuation of the market leader i.e. Top Glove implies high market expectation on strong and sustainable earnings recovery into 2013. We believe the sector de-rating is imminent, if the industry fails to show convincing earnings recovery in 1H12.

Re-rating catalysts

- Outbreak of pandemic flu, notably if there is mutation of recently detected bird flu virus into a highly contagious strain which is capable of human-to-human transmission.
- Sustainable downtrend in raw material price.



SNAPSHOT OF FINANCIAL AND VALUATION METRICS

Figure 1 : Peer comparison

Company	Call	Target price (RM)	Share price (RM)	Mkt Cap (RM m)	EPS Growth (%)		P/E (x)		P/BV (x)		ROE (%)		Net Dividend Yield (%)	
					CY12	CY13	CY12	CY13	CY12	CY13	CY12	CY13	CY12	CY13
Top Glove	Sell	4.10	5.06	3,130.1	34.9	5.7	20.2	19.1	2.5	2.4	12.1	12.7	2.3	3.3
Hartalega	Neutral	8.00	7.65	2,789.5	11.8	14.7	12.6	11.0	4.0	3.3	31.6	30.2	3.6	4.1
Supermax	Neutral	1.95	2.12	1,441.9	13.4	11.6	10.6	9.5	1.6	1.4	15.0	15.0	2.8	3.2
Kossan	Buy	4.70	3.58	1,144.6	22.2	18.5	9.5	8.0	1.8	1.5	18.9	19.2	2.4	3.0
Latexx	N/R	N/R	1.93	430.1	11.5	13.8	6.7	5.8	N/A	N/A	20.5	19.6	3.0	3.4
Adventa	N/R	N/R	1.71	261.3	243.3	N/A	10.0	N/A	1.2	N/A	10.0	N/A	4.0	N/A
Average					56.2	12.8	11.6	10.7	2.2	2.2	18.0	19.4	3.0	3.4

Note: Latexx & Adventa are based on consensus

Source: Alliance Research, Bloomberg

Share price date: 3 Feb 2012

Figure 2 : Share price performance

Company	Share price RM	Month-to-date %	Year-to-date %	30-day %	90-day %	180-day %	365-day %
Top Glove	5.06	0.0	1.2	-1.2	21.1	-4.7	1.2
Hartalega	7.65	6.0	31.0	30.3	41.4	38.6	35.9
Supermax	2.12	-0.9	10.7	7.1	17.5	13.7	-3.9
Kossan	3.58	2.3	10.2	8.5	27.9	16.2	10.8
Latexx	1.71	4.3	7.5	6.9	3.6	-6.6	-32.9
Adventa	1.93	-2.5	1.0	-1.5	9.0	0.0	-33.4
Composite Index	1,538.77	1.1	0.5	1.7	5.2	-0.4	0.5
KLSE Consumer Index	491.30	0.6	1.3	1.7	8.8	4.7	7.1

Source: Bloomberg



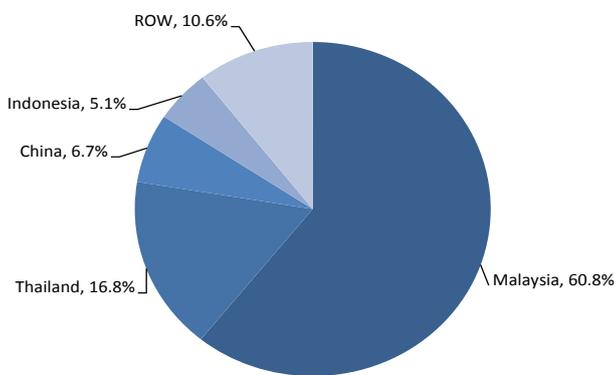
NOT THE TIME TO BUY YET...

Industry Background

The boom in the Malaysian rubber glove industry started in the early 1990s due to AIDS outbreak...

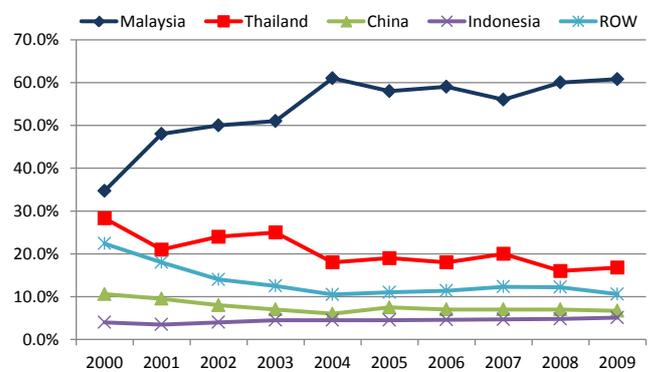
The boom in the Malaysian rubber glove industry started in the early 1990s with over 350 manufacturers in operation following global outbreak of the Acquired Immune Deficiency Syndrome (AIDS) in the late 1980s. Over the years, Malaysia has been gaining strong foothold in the global glove market given its advantage of being one of the top three natural rubber (NR) producing countries in the world. The country dominates the world rubber glove market with 61% market share, followed by Thailand, China and Indonesia which have 17%, 7% and 5% of the global market share respectively, based on Malaysian Rubber Export Promotion Council (MREPC) 2009 data. As a market leader in the global rubber glove industry, Malaysia's export earnings from rubber glove have recorded a CAGR of 13.8% over the past ten years, reaching RM8.9bn in 2010.

Figure 3 : Global rubber glove export by country



Note: ROW- Rest of the world
Source: MREPC, Alliance Research

Figure 4 : Rubber glove-exporting countries' historical market share

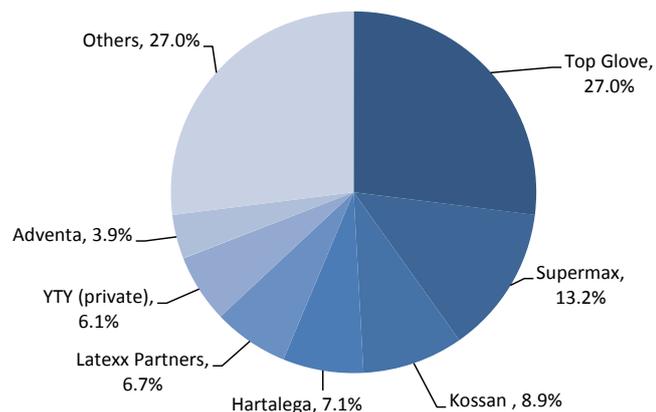


Source: MREPC, Alliance Research

14 glove manufacturers with more than 1 bn production capacity p.a. control 85% of the country total capacity

Over the past 20 years, the glove industry has been consolidating due to stringent product quality requirements and a numbers of global financial crises. Today, Malaysia is estimated to have about 49 players including 11 manufacturers who are not registered with Malaysian Association of Rubber Glove Manufacturers (MARGMA). Among the 49 independent rubber glove manufacturers, 14 of them have production capacity of more than 1 bn pieces in 2011, which is estimated to account for more than 85% of the country's capacity. Malaysia's top five glove players, Top Glove Corporation (Top Glove), Supermax Corporation (Supermax), Kossan Rubber Industries (Kossan), Hartalega Holdings (Hartalega) and Latexx Partners (Latexx) are estimated to supply about 40% of the world rubber glove demand, based on their sales volume in 2011.

Figure 5 : Malaysian glove makers' share of production capacity in 2011

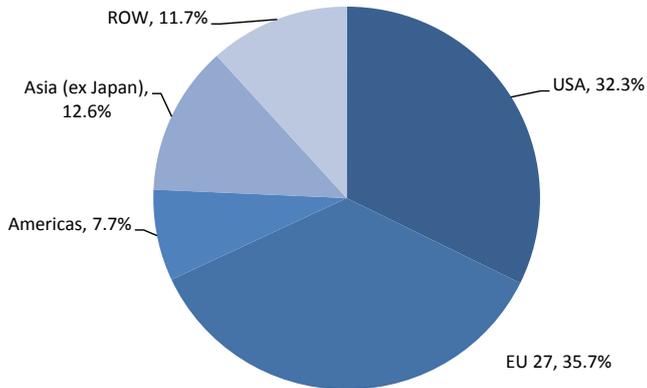


Source: Companies data, Alliance Research

Global glove consumption of 154 bn pieces is mainly from USA and EU, while Asian region still at infancy stage

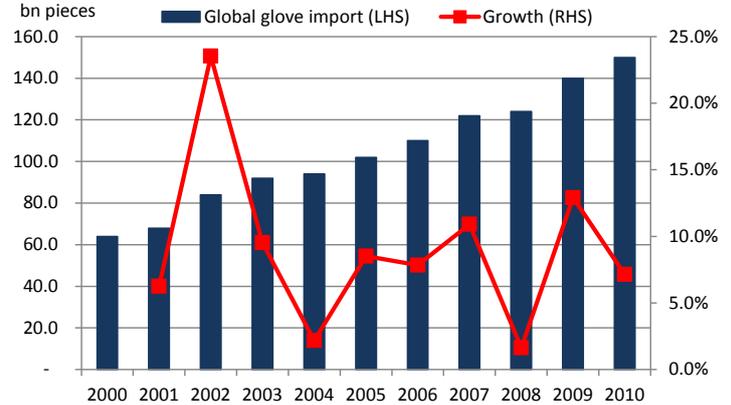
The global consumption of rubber gloves in 2011 was estimated at about 154 bn pieces by the industry players, which is a far cry from the 12 bn pieces p.a. in 1989. USA is so far the largest single rubber glove importing country with 32.3% of the global trade, followed by the 27 European Union (EU) countries which collectively account for 35.3% of the global trade. The average annual consumption per capita for these countries is more than 100 pieces p.a., which is 10x higher than the Asian region which only accounts for about 13% of the global glove import in 2009.

Figure 6 : Global rubber glove import by country in 2009



Source: MREPC, Alliance Research

Figure 7 : Global rubber glove import volume and growth



Source: MREPC, Alliance Research

Figure 8 : Malaysian rubber glove production capacity forecasts

Malaysian glove production capacity (bn pieces)	2009	2010	2011E	2012F	2013F	2014F
1 Top Glove	31.5	33.8	36.3	43.1	43.1	43.1
2 Supermax	14.5	17.6	17.8	20.4	21.6	23.9
3 Kossan	9.5	10.2	12.0	14.0	16.0	17.0
4 Hartalega	6.0	8.8	9.6	10.1	12.9	13.4
5 Latexx Partners	4.5	6.0	9.0	11.0	12.0	12.0
6 YTY (private)	3.1	3.8	8.2	10.5	10.5	10.5
7 Adventa	3.3	3.8	5.3	6.8	8.0	8.0
8 Smart Glove (private)	4.9	4.9	4.9	4.9	5.7	5.7
9 Titiglove (private)	0.7	1.5	2.3	3.0	3.8	4.6
10 WRP World (private)	3.7	3.7	3.7	3.7	3.7	3.7
11 IRCB	2.4	2.4	2.4	3.0	3.6	3.6
12 Riverstone Resources	1.1	1.8	2.5	2.5	2.5	2.5
13 Tan Sin Lian Industries (private)	1.1	1.1	1.1	1.1	1.1	1.1
14 Careplus	0.4	0.4	1.0	1.0	1.6	1.6
Major M'sian gloves capacity	86.6	99.7	115.9	135.0	146.1	150.7
Growth (%)	5.5%	15.2%	16.3%	16.4%	8.2%	3.1%
Net addition p.a.	4.5	13.1	16.2	19.1	11.1	4.5
Total market share of players with > 1 bn pieces of capacity	82%	84%	86%	88%	89%	89%
Total market share of top 6 listed co.	49%	53%	58%	63%	63%	61%
15 Quality Latex Products Malaysia S/B	0.96	0.96	0.96	0.96	0.96	0.96
16 N.S. Uni-Gloves S/B	0.85	0.85	0.85	0.85	0.85	0.85
17 Sri Johani S/B	0.72	0.72	0.72	0.72	0.72	0.72
18-49 Others (32 private co) (e- 0.5bn each)	16.00	16.00	16.00	16.00	16.00	16.00
Minor M'sian gloves capacity	18.53	18.53	18.53	18.53	18.53	18.53
Growth (%)		0.0%	0.0%	0.0%	0.0%	0.0%
Total market share of players with < 1 bn pieces of capacity	17.6%	15.7%	13.8%	12.1%	11.3%	11.0%
Total M'sian glove capacity	105.1	118.2	134.5	153.5	164.7	169.2
Net addition p.a.		13.1	16.2	19.1	11.1	4.5
Implied industry utilisation rate (%)		81%				
Malaysian rubber glove export		84.9				
Malaysian rubber glove export market share (%)		60.8%				

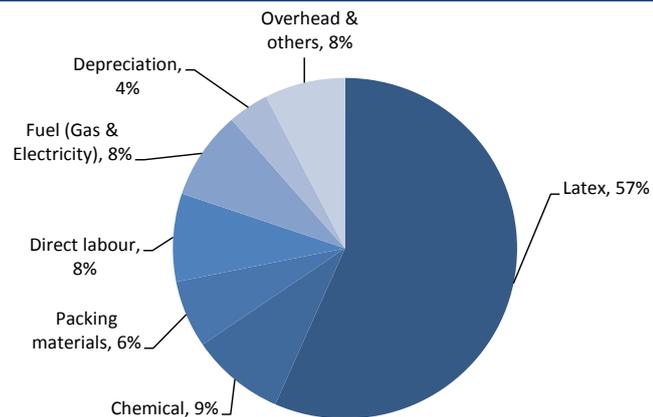
Source: Companies data, Alliance Research estimates

Industry Analysis

High barrier of entry due to economies of scales

The barrier of entry for the rubber glove industry is considerably high though it doesn't require high level of capital and technology. We believe the key hurdle for new entrants is achieving economies of scales as the glove business is very much a volume and cost focus game. The access to the cheap labour, natural gas and the key raw material, latex is the key success factor for any new entrants as these costs collectively account for approximately 75% of total production costs. We believe the bigger players generally have advantage in securing cheap labour and natural gas access, as well as better procurement price for latex due to bulk purchase, making the barrier of entry high for the new entrants.

Figure 9 : Top Glove's historical 5-year average production costs breakdown



Source: Company data, Alliance Research

Malaysian players have competitive edge on production efficiency...

Furthermore, strong entrepreneurship of Malaysian glove players led to innovation in increasing production efficiency over time. This is in no small part also contributed by strong supports from the local SME engineering firms. The local engineering firms' efforts on improving the production line design, the speed of production, products quality, and stability have created a strong competitive edge for the Malaysian glove producers over the foreign competitors, especially those competitors from the major rubber-producing countries such as Thailand and Indonesia which share the same or even better advantage on cheap labour and raw material access.

...which helps to offset the labour costs pressures and raise barrier of entry for foreign rivals to grow big

Back in late 1980s, local glove manufacturers' production lines were mainly imported from Taiwan which can only produce up to 3k gloves per hour. Soon after that, local engineering companies started to build "Made in Malaysia" lines which can produce up to 8k gloves per hour. Since then, local glove manufacturers have been working closely with the engineering companies to further improve the production lines in several stages. Today, the country has become the world leading glove supplier thanks to its utmost production efficiency with the highest production of 35k gloves per hour per line in the industry. This strength indeed helps to offset the labour cost pressure substantially which is expected to rise over the long term, and indirectly raise the barrier of entry for the foreign rivals to become a significant player in the global glove market.

Figure 10 : Malaysian glove makers' production efficiency milestones

- 1988: Imported lines from Taiwan produce about 3k gloves/hour
- 1992: Malaysian Built Lines produce 8k gloves/hour
- 1997: Malaysian Built Lines produce 12k gloves/hour
- 2002: Major Innovation using double formers resulting in production of 20k gloves/hour
- 2005: Major Innovation using auto-stripping machine to improve productivity to 30k gloves/hour
- 2007: Further improvement resulting in 33k gloves/hour
- 2010: Improved this to 35k gloves/hour
- 2012F: Potential breakthrough of 40k gloves/hour**

Source: Company data, Alliance Research



Competition in the industry will intensify due to aggressive capacity expansion as well as anticipated rise in fuel cost

Over the years, industry competition has intensified especially among the local manufacturers who add new capacity aggressively to achieve better economies of scales. We expect industry competition to persist if not worsen over the next 2-3 years as we expect threats arising not only from local players with larger capacity, but also from the neighbouring countries such as Thailand and Indonesia who have abundant domestic latex supply as well as relatively cheaper labour supply. Malaysian glove makers are expected to experience escalation in competitive pressure once they start losing their cheaper fuel cost advantage when Petronas Gas's liquefied natural gas (LNG) regasification plant commences operation by Sept 2012. As the new natural gas supply is imported at international market price, supply price to glove makers are likely to be raised as well. We understand international market price for natural gas is currently 20-30% higher than the subsidised price.

Siam Sempermed, an up and coming foreign competitor, in the next 3 years...

Among the foreign competitors, one of the notable players is Siam Sempermed, the largest rubber glove manufacturer in Thailand, who aims to double its existing production capacity of 11 bn pieces over the next 3 years. We believe the foreign competitors' threat might take shape in the coming 3 years if they could deliver consistent product quality, services and timely delivery schedule with stronger manufacturing capabilities.

Figure 11 : Foreign rubber glove players production capacity

Foreign players production capacity (bn pieces)	2009	2010	2011E	2012F	2013F	2014F
Siam Sempermed (Thai based)	10.0	10.0	11.0	14.0	18.0	22.0
Other Thai manufacturers (e)	19.3	19.3	19.3	19.3	19.3	19.3
Hongray (China based)	3.6	3.6	3.6	3.6	3.6	3.6
Other Chinese manufacturers (e)	8.1	8.1	8.1	8.1	8.1	8.1
Medisafe Technology (Indon based)	0.8	0.8	1.0	1.0	1.0	1.0
Other Indons manufacturers (e)	8.1	8.1	8.1	8.1	8.1	8.1
ROW	18.5	18.5	18.5	18.5	18.5	18.5
Total capacity	68.4	68.4	69.6	72.6	76.6	80.6
Growth (%)	8.6%	0.0%	1.7%	4.3%	5.5%	5.2%
Net addition (bn pieces)		-	1.2	3.0	4.0	4.0
Key assumptions to estimates foreign players capacity						
Thailand glove export market share (%)	16.8%					
Thailand production capacity	29.3	29.3	30.3	33.3	37.3	41.3
Thailand glove export volume	23.5					
Implied utilisation rate (%) <i>-e</i>	80.0%					
China glove export market share (%)	6.7%					
China production capacity	11.7	11.7	11.7	11.7	11.7	11.7
China glove export volume	9.4					
Implied utilisation rate (%) <i>-e</i>	80.0%					
Indonesia glove export market share (%)	5.1%					
Indonesia production capacity	8.9	8.9	9.1	9.1	9.1	9.1
Indonesia glove export volume	7.1					
Implied utilisation rate (%) <i>-e</i>	80.0%					
ROW glove export market share (%)	10.6%					
ROW production capacity	18.50	18.50	18.50	18.50	18.50	18.50
ROW glove export volume	14.80					
Implied utilisation rate (%) <i>-e</i>	80.0%					

Source: Companies data, Alliance Research estimates based on MREPC export market share data in 2009

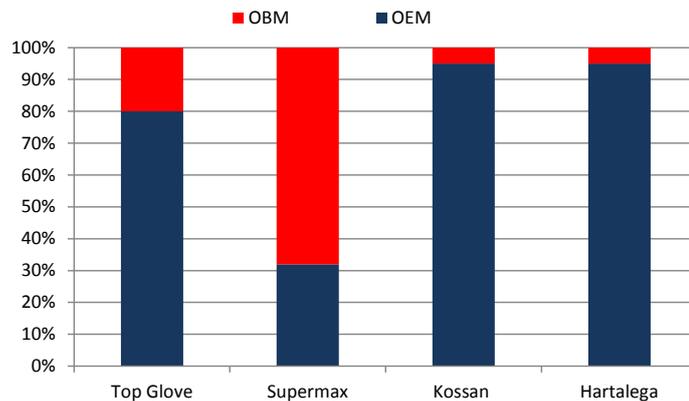
Kossan and Hartalega are currently leading in terms of R&D capabilities, in our view

Hence, we expect competition within the sector to stay on for many years. However, we believe the local players who have strong in-house research and development (R&D) capabilities are likely to face moderate competition as compared to peers. Strong R&D would ensure the company to stay ahead of its competitors in developing new or improved glove products, and better production flow which can improve its production efficiency, thereby lowering cost. Among the local players, we believe Kossan and Hartalega are currently leading its peers in terms of R&D capabilities.

High bargaining power of buyers

Majority of the glove manufacturers in the industry are predominantly original equipment manufacturers (OEM) who mainly sell their products to multinational healthcare corporates (MNCs) such as Ansell, Kimberly Clark, Cardinal Health, Medline and Microflex. All these international brands have been gaining strong foothold in the global healthcare market and making the OEM players very difficult to build their own brands, especially in the established western countries. The high reliance on the MNCs directly increases the buyers' bargaining power, especially during period when capacity surplus is rising as the brand owners can easily switch their orders from manufacturer to manufacturer and from country to country.

Figure 12 : Sales breakdown by OBM and OEM



Note: OBM - Own-brand manufacturer

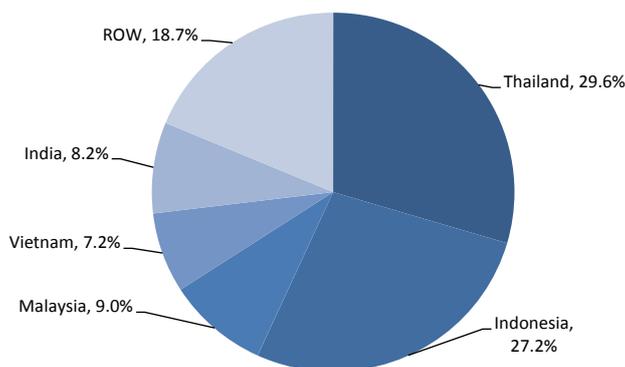
Source: Company data, Alliance Research

Therefore, we expect the buyers' bargaining power to remain high, if not higher as more and more capacity comes on stream over the next 2-3 years. One thing that is positive for the sector is the existence of cost pass through mechanism which could help to protect the glove manufacturers' bargaining power when latex costs increase. Nevertheless, if any of the medium size glove makers emerged with higher capacity, consistent product quality and timely delivery schedule, the MNC buyers can still easily switch their orders from one manufacturer to another.

High bargaining power of suppliers

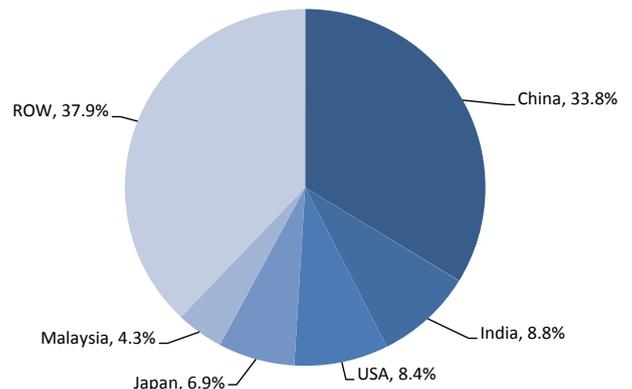
The key supply dependencies for the rubber glove industry are NR and synthetic rubber (SR). Both of these raw materials are mainly consumed by the automotive industry, particularly for the production of tyre, which consumes more than 60% of the global latex supply. NR plantation is very much a labour-intensive industry with smallholders supplying more than 80% of the industry volume. Asia is the main natural rubber producing region, with the top three producing countries, Thailand, Indonesia and Malaysia accounting for more than 65% of the global supply. China is the largest NR consuming country with 33.8% market share, followed by India, USA and Japan which have 8.8%, 8.4% and 6.9% market share in 2010.

Figure 13 : Global NR production by country in 2010



Source: Lembaga Getah Malaysia (LGM), Alliance Research

Figure 14 : Global NR consumption by country in 2010



Source: LGM, Alliance Research

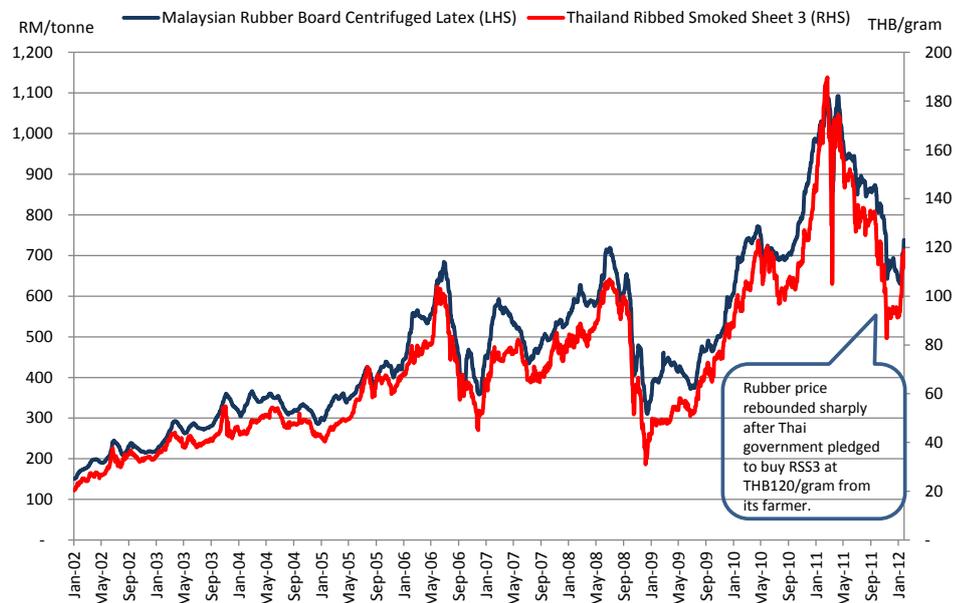


Malaysian rubber glove makers generally secured about 80% of their NR requirements locally and importing the balance from neighbouring countries. We believe latex suppliers have high bargaining power though we shall expect more NR supply coming in by end 2012 and 2013. This is simply because the governments of the rubber producing countries have been very supportive to the rubber planters in recent years by acting as the “market coordinator” when latex price drop to certain floor level due to cyclical weak demand.

Thai government has shown its willingness to intervene in its farm-commodity market in the recent years.

One of the few examples is the willingness of the Thai government to intervene in its farm-commodity market whenever there is a weakness in commodity prices. On 11 Jan 2012, the Thai government announced a plan to spend USD315m to buy 200k tonnes of rubber from its farmers at 120 baht/gram, this translates to about 6% of the country output or 1.7% of the world production. The Thai government has also provided incentives to its planters to cut down aging trees with the aim to increase the local Ribbed Smoked Sheet 3 (RSS3) price to 120 baht/kg from the level of 90 baht/kg. All these shown that the NR suppliers are largely back by their respective governments whenever their bargaining power deteriorate due to adverse market condition.

Figure 15 : Malaysian centrifuged latex vs Thailand RSS3 price



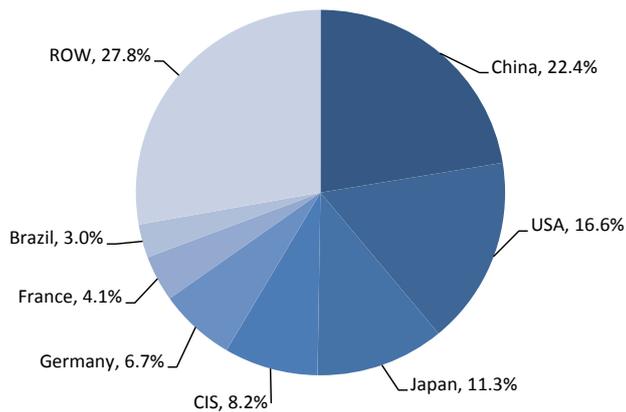
Source: Bloomberg data, Alliance Research

In addition, the Malaysia’s Plantation Industries and Commodities Minister, Bernard Dompok has also been publicly commented that latex price is too low when it hit RM6.30/kg in Jan 2012. Hence, we believe NR supply could be well controlled by suppliers who are mainly small holders who take on rubber tapping job on a part-time basis only, to avoid a massive supply surplus which could dampen the commodity price.

As for SR, Malaysia has only one synthetic latex plant which commenced operations in 2003. Most of the synthetic latex used is mainly imported from countries such as Japan, South Korea, Taiwan and United States. China is the largest SR producing country as well as the largest consuming country, followed by USA, given the fact that these two countries have the largest automotive industry in the world. SR is derived from the petrochemical feedstock and represents a small proportion of the world petrochemical output. As the tyre industry is the main consumer, SR is mainly produced by petrochemical firms, which are forward integrated into SR production, or by tyre manufacturers with a degree of backward integration.

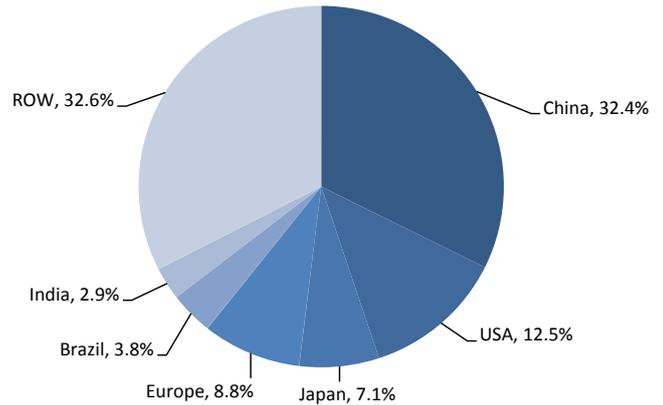


Figure 16 : Global SR production by country in 2010



Source: LGM, Alliance Research

Figure 17 : Global SR consumption by country in 2010



Source: LGM, Alliance Research

Stronger bargaining power for SR supplier too..

Low threat of substitute product but certain glove products might be replaced as industry move to higher value chain

We understand that most of the SR producers have a cost-pass-through mechanism in place, which allows cost saving and cost pressures be shared by both suppliers and buyers. However, we believe the suppliers such as the petrochemical firms still have better bargaining power as they are flexible in cracking its chemical product whenever they feel the cost passing is difficult. This was evident by the volatile butadiene price over the past few years.

On the positive side, we believe the threat of substitute product is low for the rubber glove industry due to low rubber glove cost, making no incentives for any research house to find an alternative product. However, among the various types of glove products, we foresee the threats of substitution on certain glove products to emerge over the long term as the industry moves up the value chain.

Figure 18 : Long term glove migration wave



Source: Alliance Research

Nitrile glove migration wave begins as NR glove lost price advantage

In general, we classify the gloves products into four major type based on the raw material used such as latex/ natural rubber glove, synthetic rubber/ nitrile glove, PVC/ vinyl glove and polyethylene glove (PE glove). Prior to 2010, the nitrile glove has always been selling at a premium (20-30%) to NR glove given its allergy-free characteristic and higher nitrile butadiene rubber (NBR) costs. However, the situation has changed when latex price appreciated and touched its record high of RM11.00/kg in Feb 2011, causing NR glove to lose its price advantage to nitrile glove. Since then, a strong migration wave from NR glove to nitrile glove has begun, especially in the western countries.



Figure 19 : Glove properties by product type

PROPERTIES	Natural Latex	Nitrile	Vinyl (PVC)	Polyethylene (PE)
Barrier Properties against Viral Transmission	👍👍👍	👍👍	👍	👍
Tear Resistance	👍👍	👍👍	👍	👍
Puncture Resistance	👍	👍👍	👍	👍
Tensile Strength and Elasticity	👍👍👍	👍👍	👍	👍
Protein Content (Allergic)	Present	Not Present	Not Present	Not Present
Comfort, finger dexterity to reduce hand fatigue	👍👍👍	👍👍	👍	👍
Tactile sensitivity for better feel	👍👍👍	👍👍	👍	👍
Resistant to oils and solvents	👍	👍👍👍	👍👍	👍
Resistant against chemicals	👍	👍👍👍	👍	👍
Food Contact Safety	👍👍👍	👍👍👍	👍👍👍	👍👍👍
Biodegradable and environmental friendly	👍👍👍	👍	👍	👍
Price	👍👍	👍👍	👍👍👍	👍👍👍

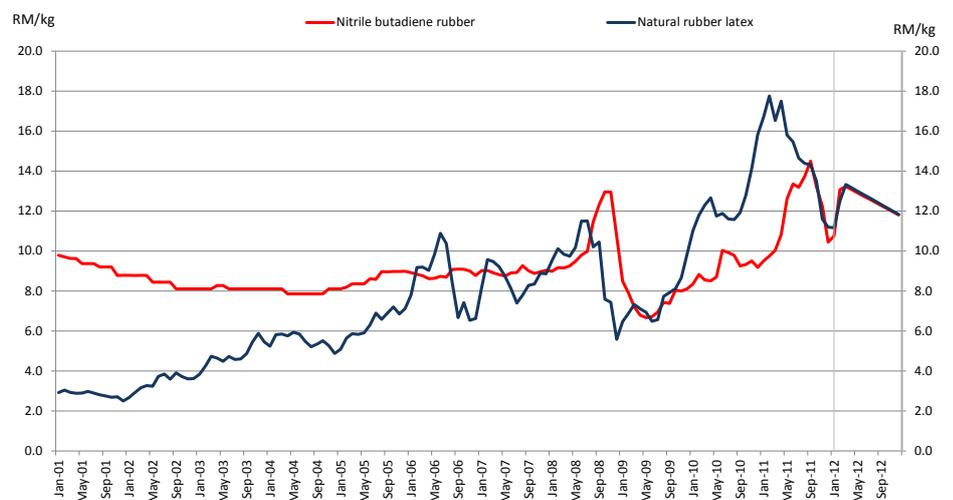
Indicator: 👍 Fair 👍👍 Good 👍👍👍 Excellent

Source: Top Glove's website, Alliance Research

However, we expect nitrile glove migration wave to slow down in the short term

Nonetheless, we expect the nitrile glove migration wave to slow down in 2012 as latex price fell from its record high of RM11.00/kg to about RM7.50/kg while NBR price remains high due to tight butadiene supply. We anticipate the NR glove price to restore its price advantage (<10%) over nitrile glove in 2012, based on our forecasts of RM7.50/kg and USD3,000/tonne for the average annual latex and butadiene price respectively.

Figure 20 : Nitrile butadiene rubber vs Natural rubber latex price



Note: Adjusted for the latex content per tonne

Source: Bloomberg data, Company data, Alliance Research

Those who had switched to nitrile glove wouldn't switch back to NR glove

However, we believe that most of the NR glove buyers who had switched to nitrile glove in the past 2 years due to attractive pricing, would still stick with nitrile glove although NR glove is expected to regain its price advantage in 2012. This is simply because most of the end users, who are mainly healthcare industry employees would still prefer the nitrile glove as it is allergy-free.

Over the long term, nitrile glove migration wave would resume

In our opinion, any price advantage for nitrile glove would actually accelerates the migration process as we believe the switching from NR glove to nitrile glove would still be going on over the long term. Therefore, we believe NR glove faces higher threats of substitution as compared to nitrile glove. On the positive front, we believe NR glove players would also benefit from the users' upgrade from the low end gloves such as vinyl glove and PE glove as these products, which are offer inferior protection to users, are mainly used in the emerging market such as China and India.



Industry Outlook

Rubber glove industry earnings are determined by supply & demand factor, latex and MYR/USD volatility

Rubber glove industry earnings are determined by the supply and demand factor, volatility in latex prices as well as the fluctuation of the Ringgit against the US dollar. We foresee a 13-26% earnings rebound in 2012 due the low base effect in 2011, rather than a sharp earnings recovery as we foresee the global capacity surplus would continue to cap the rubber glove makers' profitability although headwinds such as high latex costs and strong Ringgit have eased since 4Q11. Based on our estimates, the global glove industry utilisation rate would drop to 74% in 2012 and 2013 from the 81%, 80% and 75% achieved in 2009, 2010 and 2011 respectively.

Figure 21 : Global rubber glove supply and demand dynamic

Rubber glove production capacity (bn pieces)	2009	2010	2011E	2012F	2013F	2014F
Malaysia	105.1	118.2	134.5	153.5	164.7	169.2
Thailand	29.3	29.3	30.3	33.3	37.3	41.3
China	11.7	11.7	11.7	11.7	11.7	11.7
Indonesia	8.9	8.9	9.1	9.1	9.1	9.1
ROW	18.5	18.5	18.5	18.5	18.5	18.5
Global	173.5	186.6	204.1	226.1	241.2	249.8
<i>Net addition p.a.</i>		<i>13.1</i>	<i>17.4</i>	<i>22.1</i>	<i>15.1</i>	<i>8.5</i>
<i>Industry utilisation rate (%)</i>	81%	80%	75%	74%	74%	78%
Global rubber glove consumption (bn pieces)	140.8	150.0	154.0	166.3	179.6	194.0
<i>Growth (%)</i>	8.3%	6.5%	2.7%	8.0%	8.0%	8.0%
<i>Net addition p.a.</i>	<i>10.8</i>	<i>9.2</i>	<i>4.0</i>	<i>12.3</i>	<i>13.3</i>	<i>14.4</i>

Source: Companies data, Alliance Research estimates

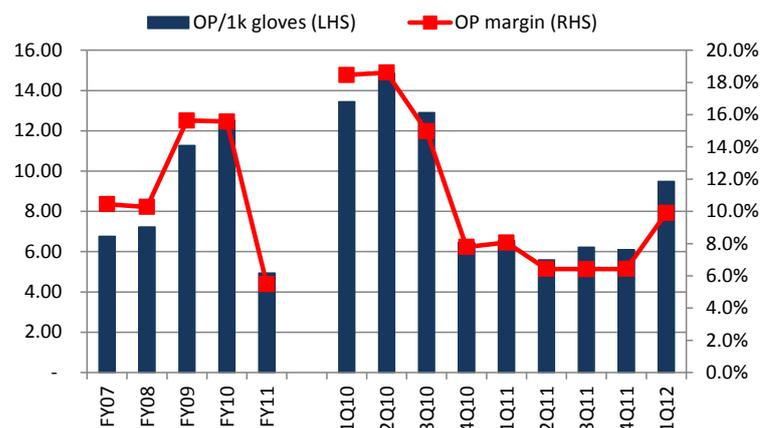
Glove makers expand to ensure their "preparedness" in the face of the next disease outbreak.

The strong capacity expansion over the past 2 years has not been without reason. We believe that glove makers are just ensuring their "preparedness" in the face of the next disease outbreak and learning from their past experience where demand could not be satisfied. Besides, many of the rubber glove makers expand capacity as they upgrade their existing production line with faster and inter-switchable line to cater the demand for both nitrile glove and NR glove based on the prevailing market condition. The aggressive capacity expansion has exerted further pressure in an already competitive industry and increase the bargaining power of buyers.

The industry profitability in 2009 and 2010 are exceptional...

Furthermore, we believe the industry's profitability in 2009 and 2010 were exceptional due to the outbreak of global pandemic disease, H1N1 flu, which can be spread from human to human. This has created exceptionally high demand for gloves during those years. We opine that the rubber glove makers' profitability should be based on absolute profit per glove instead of the profit margin as the industry is practising cost-pass-through mechanism with 1-1 ½ month time lag. In other words, the rubber glove makers should always achieve lower profit margin when average selling price (ASP) increases due to higher latex cost, while enjoy higher profit margin when ASP drops due to lower latex cost. Hence, it is a bit misleading to justify the industry cycle based on the profit margin, in our view.

Figure 22 : Top Glove operating profit/thousand pieces of glove



Source: Company data, Alliance Research estimates



Hence, the industry earnings growth is driven by sales volume growth

Industry players are guiding 8-12% p.a. growth for global glove consumption

In other words, we believe the industry cycle should be determined based on its sustainable absolute profit which depends on the industry fundamental, i.e. the supply and demand dynamic. Of course, given time lag in cost pass through, sometime the industry profit could still come in higher or lower than the sustainable absolute profit when latex price is on a consistent downtrend or uptrend. Without this factor, we expect the industry earnings growth to be driven by sales volume growth.

Generally, the industry players are guiding 8-12% growth in global glove consumption p.a. depending on whether there is any disease outbreak during the year. The world rubber glove demand is mainly driven by population growth, especially the ageing population growth and higher sanitation awareness among the emerging countries such as Brazil, China, India and Russia (BRIC) which are still on average, consuming less than 10 pieces of glove p.a. per capita as compared to the western countries' average annual consumption of more than 100 pieces per capita. This ensures the long term demand growth for the industry as the saturation point is still far away, we believe. In addition, we believe sanitation awareness could accelerate when there is a worldwide spread of infectious disease, which act as the trump card for the industry as it could change the industry supply and demand dynamic within a short period of time. Presently, the US and European countries are the main rubber glove consumers which consume about 70% of the world rubber gloves.

Figure 23 : Healthcare expenditure per capita and glove consumption per capita by country

Country	Population (mn)	Healthcare expenditure per capita (USD)	Healthcare % of GDP	Glove usage per capita (pieces)
USA	315	7,164	15.2%	143.6
EU 27	511	2,283	8.5%	97.8
Japan*	127	3,190	8.3%	38.0
Australia*	21	4,180	8.5%	133.0
Brazil*	194	721	8.4%	22.0
Russia*	141	568	4.8%	17.0
China*	1,353	146	4.3%	3.5
India*	1,198	45	4.2%	3.0
SEA*	1,784	47	3.8%	N/A

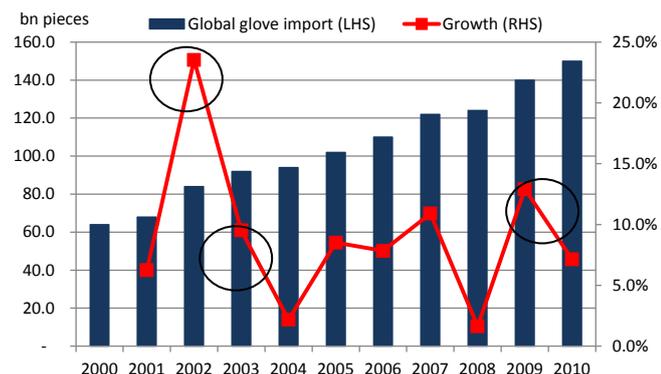
**Notes: Glove consumptions per capita are based on 2006 data.*

Source: WHO World Health Book 2011 (2008 data), Alliance Research

Pandemic year recorded strong demand growth rate of 15.3% as compared to non-pandemic year's 6.7% growth rate

Over the past decade, the world has experienced two severe disease outbreaks which can be spread from human to human, i.e. the 2002/2003 Severe Acute Respiratory Syndrome (SARS) and 2009/2010 Swine Flu (H1N1) outbreaks. During the pandemic years (2002, 2003 & 2009), most of the glove makers experienced an uptrend in terms of revenue, capacity expansion and profitability, thanks to the strong growth of global rubber glove demand. The global rubber glove imports achieved an average growth rate of 15.3% during the pandemic years as compared to the average growth rate of 6.7% in the non-pandemic years.

Figure 24 : Global rubber glove import

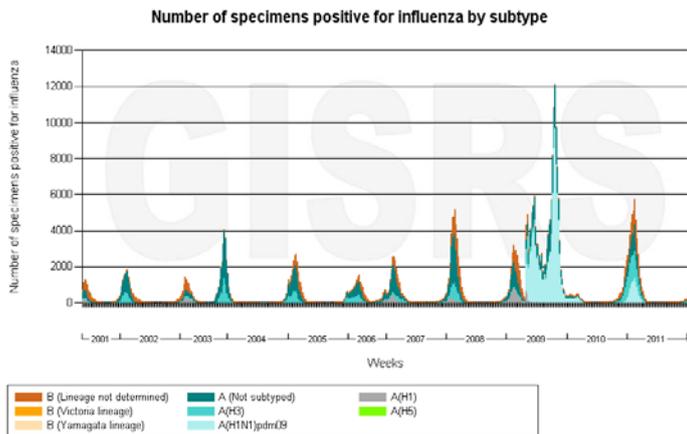


Source: MREPC, Alliance Research

Bird flu wouldn't be a global pandemic, unless the virus mutates

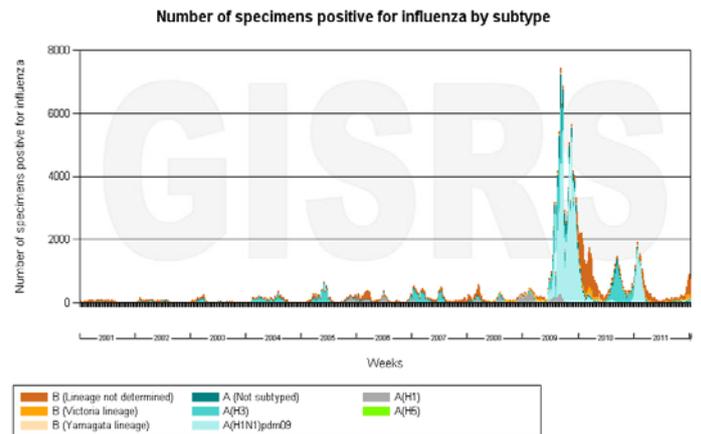
Recently, there were a few reported fatalities due to bird flu in the Asia Pacific region. Based on the historical global glove imports growth rate, we believe the threat of bird flu (H5N1) wouldn't be as serious as a contagious disease. Most of the time, the bird flu outbreak can be effectively controlled by the culling of poultries as the virus is only transmitted from animal to human. Hence, we believe the global glove demand wouldn't be boosted by this non-contagious virus. However, there is always the possibility of virus mutation which could result in the virus being transmitted from human to human. But still, it is too early to upgrade the sector earnings now due to the limited cases of bird flu fatalities within the region.

Figure 25 : USA historical 10-year influenza trends



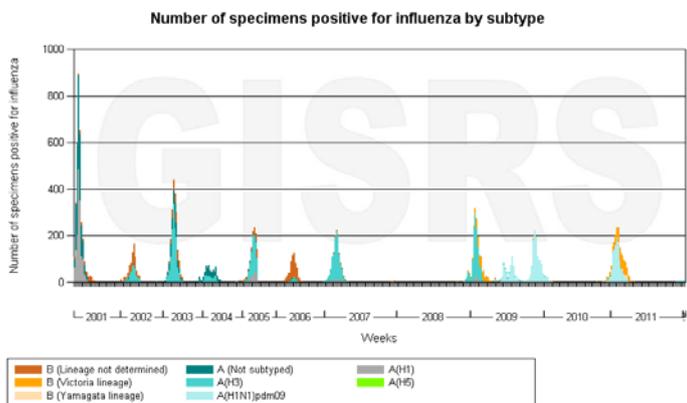
Source: WHO

Figure 26 : China historical 10-year influenza trends



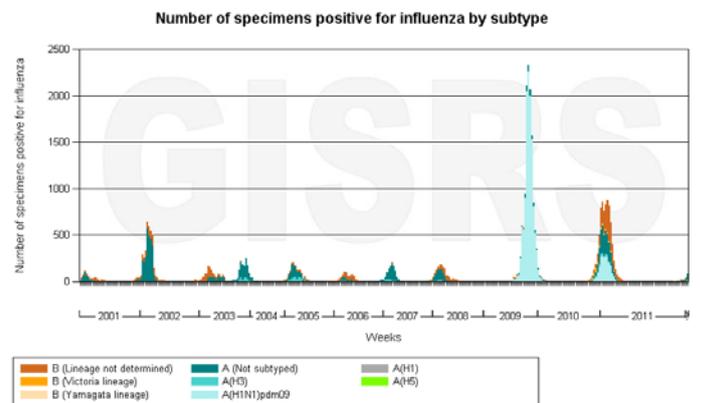
Source: WHO

Figure 27 : Germany historical 10-year influenza trends



Source: WHO

Figure 28 : France historical 10-year influenza trends



Source: WHO

Infrastructure bottleneck and labour shortages could be a threat to the Malaysian rubber glove makers...

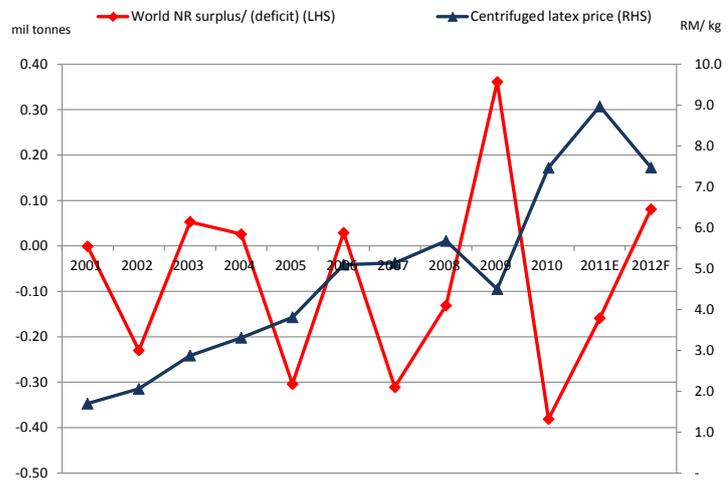
Furthermore, the infrastructure bottlenecks and labour shortages could be also a threat to the Malaysian rubber glove makers. This is because most of the MNCs wouldn't wait for the glove manufacturers to expand its production capacity to meet its orders, but rather to source from its foreign competitors who have ready capacity to meet the sudden surge in demand. Currently, the industry is experiencing tight natural gas supply as it reached the maximum capacity allocation by Petronas due to the country's gas shortages. However, to resolve the shortage of gas supply, the Malaysian government has allowed Petronas to import natural gas and resell it at the market price. This new allocations are expected to come on stream by September 2012 when the new regasification plant in Melaka comes onstream. We understand that the international market price for natural gas is currently about 20-30% higher than the existing subsidised price.



Lower latex price in 2012 and 2013 as compared to 2011

While supply and demand factor, infrastructures bottlenecks and labour shortages seem to be detrimental to the glove players over the next 2 years, the latex price pressure appears to be better in 2012 and 2013 as the global NR supply is expected to turn from a deficit of 159k tonnes in 2011 to a surplus of 81k tonnes in 2012, based on the International Rubber Study Group (IRSG) estimates on 9 Jan 2012.

Figure 29 : World NR supply surplus/ (deficit) vs Centrifuged latex price



Source: IRSG, Bloomberg data, Alliance Research forecasts

Since the early 2000s, latex price has been on the rising trend due to tight global supply as rubber growers switched to oil palm plantation given better margins from crude palm oil (CPO). Since then, the world NR supply has never exceeded global demand by more than 1%. This caused the latex price to appreciate at a CAGR of 19% from 2001 to 2008. In 2009, the latex price corrected by about 20% to an average price of RM4.50/kg as the global NR demand shrank by 8.3% due to the Global Financial Crisis. This forced the world NR supply to turn into a significant surplus of 3.9% during the year. However, latex price quickly recovered in 2010 and 2011 as NR supply swing back to deficit again, resulting in latex price to surge by 66% and 20% in 2010 and 2011 respectively, to record an average price of RM7.50/kg and RM9.00/kg in the respective years.

However, latex price volatility is here to stay...

Going forward, we expect the latex price volatility to stay and anticipate it to trade between RM6.50/kg to RM8.00/kg over the next 2 years as we foresee more governments' intervention to stabilise this commodity price to safeguard the interest of the small holders. Hence, we expect the average latex price in 2012 to be about RM7.50/kg, down 17% from 2011. Over the near term, we expect the latex price to rebound from its low of RM6.30/kg to RM8.00/kg by March 2012 as rubber estates start entering the wintering season in Feb-April. Thereafter, the latex price should be softening again to about RM7.00/kg by the end of the year.

NBR price is expected to remain strong in 2012, especially in 1Q12

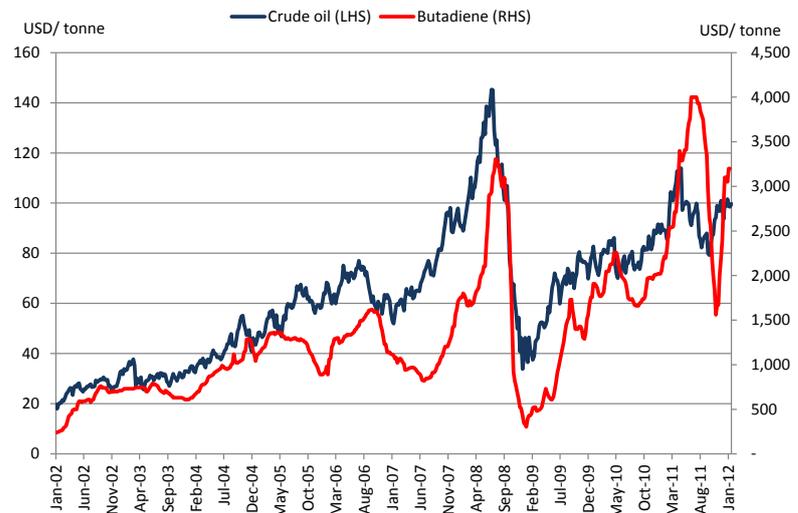
As for the synthetic rubber, we foresee the NBR price to remain strong in 2012, particularly stronger in 1Q12, given the shortage of its feedstock, butadiene due to the crackers production cutback. We understand that butadiene supply is very much determined by the ethylene cracker operating rates and the type of feed being cracked as over 95% of butadiene is produced as a by-product of ethylene production from the steam crackers. Basically, there are two type of feed to produce ethylene, i.e. the lighter feedstock such as ethane and the heavier feedstock such as naphtha. Lighter feedstock produces less butadiene feed/ Crude C4 as compared to the heavier feedstock. Hence, when the crackers especially those from Europe and the US cut back their cracking operations due to new supply coming from the Middle East and Asia which uses lighter feedstock, the butadiene supply will drop.



Recent Iran's oil export sanction would result high crude oil price, and hence, high butadiene price in 2012

In other words, cracking the heavier feedstock, naphtha would be better for butadiene supply. Naphtha is one of the intermediate products which is derived from the distillation of crude oil. It is a liquid intermediate between the light gases in the crude oil and the heavier liquid kerosene. Hence, the naphtha price highly correlates with the international crude oil price, indirectly resulting in a strong correlation (80%) between butadiene price and crude oil price. Going forward, we expect the crude oil supply to remain tight due to the recent sanction on Iran's oil export. We believe this is likely to underpin the current crude oil price of about USD100/barrel and therefore, strong butadiene price is expected in 2012.

Figure 30 : Crude oil vs butadiene price



Source: Bloomberg data, Alliance Research

Currency fluctuation resumes as USD start weakening after the US Federal Reserve pledged to keep its interest rate low until 2014

Last but not least, the volatility of Ringgit against USD might resume, after the US Federal Reserve pledged to keep its interest rate low until late 2014 as well as indicating its willingness to implement another round of quantitative easing (QE) should the US economy falters. This could result to USD weakening against Ringgit, especially when the financial market turns more positive and "hot money" starts flowing out from the US market to the emerging markets. This was evident by the recent Ringgit strengthening which started since the mid of Dec 2011. We believe only about 80% of the ASP changes due to currency could be passed on to customers, depending on the relative performance of the foreign competitors' currency against USD. Nonetheless, the cost pass through would still be 1 to 1 ½ month time lag, which will adversely affect 1QCY12 earnings if not more.

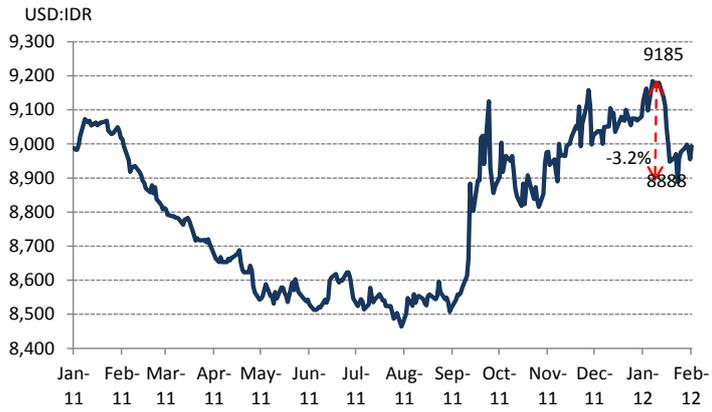
Figure 31 : US dollar against Malaysian Ringgit movements



Source: Bloomberg data, Alliance Research



Figure 32 : US dollar against Indonesian Rupiah movements



Source: Bloomberg data, Alliance Research

Figure 33 : US dollar against Thai Bath movements



Source: Bloomberg data, Alliance Research

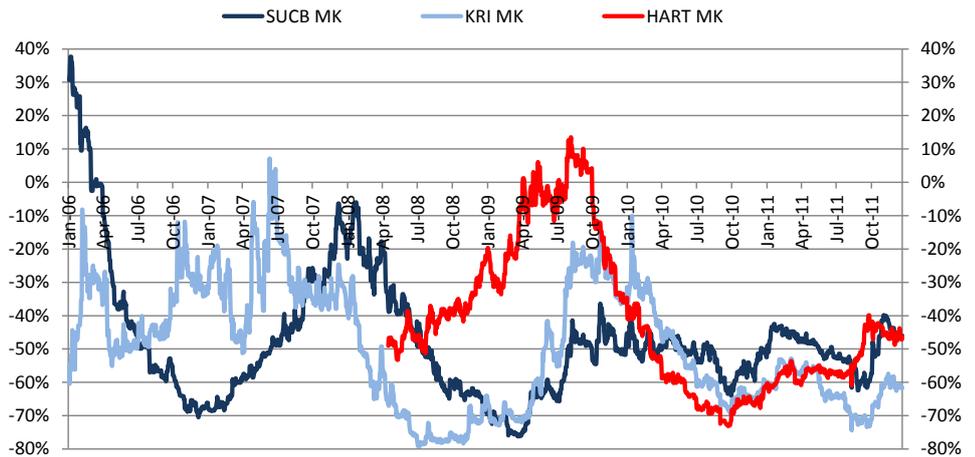


Recommendation

Initiate coverage on the glove sector with an Underweight recommendation as we believe consensus forecasts are on the high side

We initiate coverage on the rubber glove sector with an Underweight recommendation as we believe the existing consensus earnings forecasts for the industry are on the high side. Top Glove as the industry proxy and the market leader always sets the industry valuation benchmark. We noted that most of the smaller glove players are always valued at a sharp discount (70-80%) to Top Glove's valuation during the sector downcycle but close its discount gap when the cycle turns positive. Over the past 6 years, the average valuation discount for Supermax, Kossan and Hartalega was about 45%.

Figure 34 : Other glove makers' valuation premium/ (discount) to Top Glove



Source: Bloomberg data, Alliance Research

Over the long term, we believe the winner in the industry would be closing its discount gap to Top Glove

Top Glove is being valued at 21x PER but we believe 17x is its fair valuation

Currently, Top Glove is being valued at 20x PER based on our forecasts for its 12-month forward earnings, which is 9% lower than consensus estimates. We believe the market is anticipating a strong and sustainable earnings recovery into 2013 as the current valuation is higher than its historical 5-year average PER of 17x. As we don't foresee an industry upcycle, which should be justified by expanding absolute profit per glove in 2013, we think the current high valuation is vulnerable to a sell down if the industry does not show significant earnings improvement in the coming quarters.

Sector de-rating is imminent, Sell Top Glove...

Hence, a sector de-rating is imminent, in our view, once the market starts to realise the industry earnings outlook will only improve with better supply and demand dynamic. Going forward, we believe the market leader should be trading between 16-17x PER. Therefore, we initiate coverage on Top Glove with a Sell recommendation and target price of RM4.10.

...but Buy Kossan due to stronger earnings growth rate

At the same time, we also initiate coverage on the next three largest glove makers in Malaysia, which are Supermax, Kossan and Hartalega. Among the three, we have only one Buy recommendation on Kossan with a target price of RM4.70 based on 13x 12-month forward PER. We apply a higher target PER for the company as compared to its 6-year historical average PER of 9.5x as we expect the company to achieve better earnings growth over the next 2 years due to its improved product mix and contract-based capacity expansion.

Stay Neutral on Supermax and Hartalega as we see limited upside over the next 12 months

As for Supermax and Hartalega, we have Neutral recommendations as we see limited upside over the next 12 months although valuations are not demanding. We value Supermax and Hartalega based on 10x and 13x PER respectively, implying a 40% and 24% discount to Top Glove's valuation. We apply a lower target PER for Supermax as we don't expect the company being re-rated in the near term without a sector upcycle, due to its high beta.



Figure 35 : Summary of top 4 rubber glove makers in Malaysia

	TOP GLOVE CORP BHD	HARTELEGA HOLDINGS BHD	SUPERMAX CORP BHD	KOSSAN RUBBER INDUSTRIES
Corporate Profile	Top Glove is the world largest and integrated glove maker who focus on entry-level gloves to ride on the growth in emerging markets.	Hartalega is the world's largest nitrile glove producer which enjoy the highest profit margin among its peers due to its high production efficiency.	Supermax is the largest Original Brand Manufacturer (OBM) rubber glove maker in Malaysia with 68% of its revenue coming from its own brands.	Kossan is the most balanced glove manufacturer with 56% of its sales volume coming from the natural rubber (NR) gloves while 44% contributed by the nitrile gloves.
Key operations based in	Klang, Selangor	Batang Berjuntai, Selangor	Klang, Selangor	Klang, Selangor
Major shareholders	Lim Wee Chai & Family-38.2% KWAP- 5.5% Matthew International- 5.2% Top Glove Holdings- 5.2%	Kuan Kam Hon & Family- 51% Kelana Citra S/B- 4.5% BNP Paribas Wealth Management- 4.1%	Stanley Thai & Cheryl Tan- 35.5% EPF- 8.1% Skagen Kon-Tiki Verdispapirfond- 4.4%	Lim Kuang Sia & Family- 51.9% KWAP- 7.6% Asian Small Coys Portfolio-4.9% Invesco Ltd- 4.7%
External Auditor	Ernst & Young	Moore Stephens	Monteiro Heng	KPMG
Total Production Capacity (bn pieces)				
FY10A	33.8	8.8	17.6	10.2
FY11A	36.3	9.6	17.8	12.0
FY12F	43.1	10.1	20.4	14.0
FY13F	43.1	12.9	21.6	16.0
Growth- FY12	18.7%	5.2%	14.6%	16.7%
- FY13	0.0%	27.7%	5.9%	14.3%
- 2-Yr CAGR	9.0%	15.9%	10.2%	15.5%
Revenue by product	100%	100%	100%	100%
Powdered NR glove	51%		30%	28%
Powdered-free NR glove	27%	5%	31%	28%
Nitrile glove	14%	95%	36%	44%
Vinyl glove	4%		3%	
Surgical glove	3%			
Others	1%			
Revenue mixture	100%	100%	100%	100%
OEM	80%	96%	32%	95%
OBM	20%	4%	68%	5%
Revenue by market	100%	100%	100%	100%
North America	27%	55%	40%	50%
Europe	36%	33%	28%	30%
South America	19%	1%	15%	4%
Asia Pacific	9%	8%	7%	10%
Africa/Middle East	6%		6%	2%
Oceania		2%		
ROW	3%	1%	4%	4%
SWOT Analysis	TOP GLOVE	HARTELEGA	SUPERMAX	KOSSAN
Strength	Strong presence in the emerging market is its strength and advantage over the long term. The group is also strong in taking initiatives to improve its long term costs structure.	Strong R&D making it to always stay ahead of its competitors in terms of production efficiency and profitability.	Strong marketing skills and position itself as an OBM player to extract the maximum value out of the supply chain.	Most balanced product portfolio which reduced its business risk sharply. Has high flexibility to cater the demand switch between NR glove and nitrile glove as 90% of its production lines are inter-changeable.
Weakness	High dependency on NR as 78% of its revenue comes from NR glove.	Weak exposure in the emerging markets is the company's biggest weakness as the long term earnings growth is likely to be underpinned by these untapped markets.	High share price volatility due to high beta appears to be its biggest weakness. Short-term company rerating without the sector up cycle is unlikely, prompting us to apply a 40% discount to its valuation.	Weak exposure in the emerging markets is the company's biggest weakness as the long term earnings growth is likely to be underpinned by these untapped markets.
Opportunities	Highest idle capacity ensures the group to be the biggest beneficiary if there is any disease outbreak. In addition, it has huge opportunity in the untapped emerging markets, given its strong presence there.	Strongest war chest to win in the capacity-expansion battle might be its rerating catalyst.	Opportunities arise if the Glove City Project, which could double its existing production capacity, kick-off. In addition, the company has the most upside during sector up cycle, thanks to its high beta nature.	Blue Ocean Strategy would help the company to survive in the competitive glove industry. Expect it to expand its absolute profit/k gloves due to higher contribution from high value added gloves.
Threats	Top Glove's main product has lowest barrier of entry appears to be its biggest threat going forward.	Increasing competition in nitrile glove segment might hurt its profit margin going forward.	Exceptional low effective tax rate might be a threat to the company's earnings.	Biggest threats are still volatile latex prices and USD currency.

Source: Companies data, Alliance Research

APPENDIX I

Latex glove production process

Generally, latex gloves are made by dipping moulds in the shape of human hands into liquid latex and chemicals. Once hardened, the finished products are stripped off the mould, packaged and sterilised. Below are the production flows from latex to latex glove.



1) The rubber tree

Latex is a natural product that comes from rubber trees. Though rubber trees can live for up to 100 years, the prime age for latex rubber production is when trees are between the age of 6 and 30 years. Rubber trees are either native trees (that grow naturally) or hybrid trees that have been organised in a rubber plantation. Latex output is usually much greater from hybrid rubber trees. Some plantation companies cut down rubber trees after they reach production maturity, replant new ones, and use the wood to fuel the factories that produce many latex-based products or sell the wood to local furniture manufacturers.



2) Harvesting the latex

Latex is a white, milky liquid that flows from the tree when the tree bark is scored (or shaved) and flows into a collection device that is attached to the tree. During the rainy season, the trees are tapped every day after the rain has stopped. For the rest of the year, the trees are tapped every other day. On the average, the annual yield of latex from a rubber tree will produce the equivalent of two boxes of examination gloves. The best time for tapping the trees is at night. Most latex farmers work at night, and sleep during the day. Usually, one side of the tree is scored for four years before switching to the other side.



3) Collection of the latex

Since latex is a natural product, it can spoil. Therefore, it needs to be collected quickly and stabilised. The collectors of the latex follow the farmers (kind of a second shift) usually between 6:00 a.m. and 8:00 a.m. and take the tapping cups, which are attached to the tree, and load the contents into larger, easy-to-carry containers. The latex needs to be treated with chemicals quickly or it will harden into a gum.



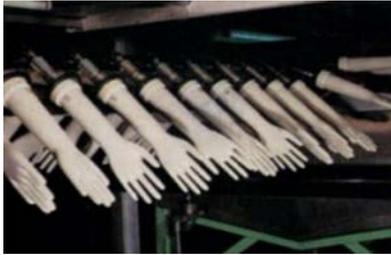
4) Collection centres

This is where the fresh latex is processed. The collection centres are either owned by local dealers that have relationships with rubber factories, or are part of company-owned cooperatives. At the collection centre, latex is centrifuged to remove water, proteins and impurities. Ammonia is added to preserve the product for its trip to the factory and storage.



5) Centrifugation

Centrifuging the latex not only concentrates the rubber content by up to about 60%, but also reduces the protein content. Double centrifuging can reduce protein content even further.



6) Cleaning former

The hand-shaped formers must be cleaned to ensure there is no dirt or debris which would cause the final product to possibly have defects like holes. To clean the glove formers, an acid bath is used by dipping the formers in them and then rinsing with clean water. The formers are then dipped into an alkaline bath to neutralize the acid, and again rinsed in clean water. Afterwards, the formers are brushed to ensure the surface of the formers is consistent. This is an important step. Factories brush the formers to eliminate pin holes on the latex gloves.



7) Coagulant tank

Once cleaned, the glove formers are dipped into a coagulant bath to help the latex mixture adhere to the formers and help ensure the latex is distributed evenly. The coagulant tank stage determines the thickness of the latex exam glove. The thicker the requirements for the disposable gloves are, the longer the formers will travel in the coagulant tank.



8) Latex dipping

The formers are coated with coagulant (e.g. calcium nitrate) and dipped into the latex to coat them with a thin film of latex. The coagulant converts the liquid latex film into a wet-gel on the former. Subsequent passage through a warm oven completes the coagulation process.



9) Glove leaching

After drying the latex mixture, the gloves are put through a leaching line to remove residual chemicals and proteins from the surface of the gloves. A good leaching line should be long, so latex proteins can be more effectively washed out. The water should also be hot and fresh to dissolve proteins better. This step is crucial to minimize the occurrence of latex sensitivity. The key to making a good medical glove is to have a good leaching line. Factories that have bad leaching lines will probably be dirty in addition to the leaching line being short. The glove leaching stage is one area factories will vary depending on the quality of gloves that are produced.



10) Wet even powdering

The glove formers then go through a wet powder to ensure even powdering. This wet powder, also referred to as slurry, is cornstarch. Traditionally, powdered latex exam gloves were preferred compared to powder-free versions. The powder on the gloves was beneficial in the preservation of the latex gloves and assisted in the donning process of the gloves. However, the healthcare community has shifted to the use of powder-free medical exam gloves to avoid allergy issue. Interestingly enough, the glove formers still go through the wet even powdering stage to make powder-free latex gloves. Afterwards, the gloves will go through more ovens for further drying and additional rinsing cycles where the powder will be removed.



11) Stripping

Next, the latex gloves are stripped off the formers. Workers wear examination gloves and hair coverings so that the gloves being manufactured do not become contaminated. The workers will collect the latex examination gloves for the final drying phase of the latex glove manufacturing process.



12) Drying

After the latex gloves are taken off the formers, they are put into commercial dryers to ensure that the powder is more evenly distributed and excess powder is removed. This process also makes the latex gloves more elastic allowing you to easily stretch the gloves.

13) Transforming into powdered-free glove

A powder-free exam glove generally starts out as a powdered glove, and then has its powder removed. In the manufacturing process, the powder helps the exam gloves give uniformity as well as prevent the latex gloves from melding together before they are dried. To remove the powder and transform the latex gloves into powder-free versions, the latex gloves are rinsed in water and then placed into a chlorine bath to remove some of the tackiness from the surface of the glove. The glove is turned inside out, and the process is repeated. Once the bathing is complete, the powder-free gloves are placed back into the dryers.



14) Checking for defects using the air test

One of the quality tests factories will use to meet AQL (Acceptable Quality Level) standards for manufacturing latex examination gloves is the air test. The factories will inflate the latex gloves with air to visually detect any defects placing close attention to the fingers. Air testing the exam gloves is quite effective because the workers can see how the latex material spreads as the glove stretches.



15) Detecting pinholes using the water test

The FDA requires the testing of medical exam gloves for pinholes which can best be detected in a water test. Each exam glove is filled with 1000 ml of water and examined for leaks. The FDA requires a 2.5 AQL (Acceptable Quality Level) or better for a shipment of medical-grade exam gloves to be received in the United States. Water testing has become a standard for medical gloves in determining how stringent requirements are for each exam glove manufacturer.



16) Packing the gloves in boxes

The final step in manufacturing latex gloves is to pack the exam gloves in boxes. Factories which are meticulous about quality will pack the exam gloves flat, one on top of the other. This reduces waste and makes gloves easier to take out of the box. Think of how easy it is to dispense tissue from a tissue box. The same idea is applied to exam glove box dispensers. Factories which do not care will simply stuff each box with gloves but this makes it difficult to dispense each glove later. Reputable companies will make sure that every exam glove is packaged using the layered technique.

(Source: Pro2Solutions & Medical Exam Glove website)



APPENDIX II

Rubber glove products

Basically, rubber gloves are segmented into a few categories, i.e. examination gloves, surgical gloves, sterile surgical gloves, cleanroom gloves, industrial gloves and household gloves. Examination gloves are further divided into two categories, i.e. medical grade and non-medical grade.

- i) **Medical grade examination gloves** are extensively tested to meet stringent international standards, which are in accordance to various regulations in different countries. It is made of natural rubber, nitrile, vinyl or some other materials. The glove is a disposable item intended for a single usage and is used in health care to prevent contamination between patients and the medical examiners.
- ii) **Surgical gloves** are made from natural or synthetic rubber, which are mainly used by operating room personnel to prevent contamination between patients and medical and other health care personnel.
- iii) **Sterile surgical gloves** are by far the highest grade gloves available and, because of the corresponding high cost, are typically used by surgeons and operating rooms staff or in clean-room environment.
- iv) **Cleanroom gloves** is used in a room (facility) in which the air supply, air distribution, filtration of air supply, materials of construction, apparel worn and operating procedures are regulated to control airborne particle concentrations to meet appropriate cleanliness levels as defined by Federal Standard 209 or ISO 14644. The air in these rooms is thousands of times cleaner than that in a typical hospital operating room. These cleanrooms are typically where microchips are fabricated.
- v) **Industrial gloves** are heavy-duty gloves designed specifically for industrial usage to protect against hazardous substances or chemicals, and protect against abrasion.
- vi) **Household gloves** do not have to meet stringent requirements and are more for general household use such as gardening, cooking, dish washing and cleaning.

In terms of glove types, we basically classify the gloves products into four major type of gloves based on its raw material used such as latex/ natural rubber glove, synthetic rubber/ nitrile glove, PVC/ vinyl glove and polyethylene glove (PE glove).

In addition, latex and nitrile gloves are further divided into powdered and powdered free gloves. Powdered free gloves are gloves that without powder, classically cornstarch which is added to gloves to make them easier to wear. It is supposed to make gloves safer by reducing the risk of ripping or tearing when the users donning.

However, studies suggest that powdered latex gloves are actually problematic for people with latex allergies as the latex proteins adhere to the powder particles and carry additional irritants at the same time. Hence, powdered free latex gloves help to reduce the risk of latex allergies.

While for nitrile glove, both powdered and powdered free gloves are considered safe from latex allergies. However, given a choice, users would prefer powdered free nitrile glove as powder shown negative consequences for open wounds, contributing to infection, scarring and adhesion.



APPENDIX III

WHO pandemic alert stages

Phase 1- No viruses circulating among animals have been reported to cause infections in humans.

Phase 2- An animal influenza virus circulating among domesticated or wild animals is known to have caused infection in humans, and is therefore considered a potential pandemic threat.

Phase 3- An animal or human-animal influenza reassortant virus has caused sporadic cases or small clusters of disease in people, but has not resulted in human-to-human transmission sufficient to sustain community-level outbreaks. Limited human-to-human transmission may occur under some circumstances, for example, when there is close contact between an infected person and an unprotected caregiver. However, limited transmission under such restricted circumstances does not indicate that the virus has gained the level of transmissibility among humans necessary to cause a pandemic.

Phase 4- Characterized by verified human-to-human transmission of an animal or human-animal influenza reassortant virus able to cause “community-level outbreaks.” The ability to cause sustained disease outbreaks in a community marks a significant upwards shift in the risk for a pandemic. Any country that suspects or has verified such an event should urgently consult with WHO so that the situation can be jointly assessed and a decision made by the affected country if implementation of a rapid pandemic containment operation is warranted. Phase 4 indicates a significant increase in risk of a pandemic but does not necessarily mean that a pandemic is a forgone conclusion.

Phase 5- Characterized by human-to-human spread of the virus into at least two countries in one WHO region. While most countries will not be affected at this stage, the declaration of Phase 5 is a strong signal that a pandemic is imminent and that the time to finalize the organization, communication, and implementation of the planned mitigation measures is short.

Phase 6- The pandemic phase, is characterized by community level outbreaks in at least one other country in a different WHO region in addition to the criteria defined in Phase 5. Designation of this phase will indicate that a global pandemic is under way.

During the post-peak period, pandemic disease levels in most countries with adequate surveillance will have dropped below peak observed levels. The post-peak period signifies that pandemic activity appears to be decreasing; however, it is uncertain if additional waves will occur and countries will need to be prepared for a second wave.

Previous pandemics have been characterized by waves of activity spread over months. Once the level of disease activity drops, a critical communications task will be to balance this information with the possibility of another wave. Pandemic waves can be separated by months and an immediate “at-ease” signal may be premature.

In the post-pandemic period, influenza disease activity will have returned to levels normally seen for seasonal influenza. It is expected that the pandemic virus will behave as a seasonal influenza A virus. At this stage, it is important to maintain surveillance and update pandemic preparedness and response plans accordingly. An intensive phase of recovery and evaluation may be required.

(Source: World Health Organization)



DISCLOSURE

Stock rating definitions

- Strong buy - High conviction buy with expected 12-month total return (including dividends) of 30% or more
- Buy - Expected 12-month total return of 15% or more
- Neutral - Expected 12-month total return between -15% and 15%
- Sell - Expected 12-month total return of -15% or less
- Trading buy - Expected 3-month total return of 15% or more arising from positive newsflow. However, upside may not be sustainable

Sector rating definitions

- Overweight - Industry expected to outperform the market over the next 12 months
- Neutral - Industry expected to perform in-line with the market over the next 12 months
- Underweight - Industry expected to underperform the market over the next 12 months

Commonly used abbreviations

Adex = advertising expenditure	EPS = earnings per share	PBT = profit before tax
bn = billion	EV = enterprise value	P/B = price / book ratio
BV = book value	FCF = free cash flow	P/E = price / earnings ratio
CF = cash flow	FV = fair value	PEG = P/E ratio to growth ratio
CAGR = compounded annual growth rate	FY = financial year	q-o-q = quarter-on-quarter
Capex = capital expenditure	m = million	RM = Ringgit
CY = calendar year	M-o-m = month-on-month	ROA = return on assets
Div yld = dividend yield	NAV = net assets value	ROE = return on equity
DCF = discounted cash flow	NM = not meaningful	TP = target price
DDM = dividend discount model	NTA = net tangible assets	trn = trillion
DPS = dividend per share	NR = not rated	WACC = weighted average cost of capital
EBIT = earnings before interest & tax	p.a. = per annum	y-o-y = year-on-year
EBITDA = EBIT before depreciation and amortisation	PAT = profit after tax	YTD = year-to-date



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