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ANNEX

FOREWORD



Albert Lim
*Chairman,
Singapore Packaging
Agreement
Governing Board*

Having been at the helm, driving the implementation of the Singapore Packaging Agreement (SPA) for six years now, I am happy to note that the industry has taken great strides in reducing packaging waste.

The industry first made the commitment, in 2007, to take greater stewardship of its packaging and find cost-effective solutions to reducing waste. Since then, it has not looked back. Year after year, we see new initiatives being implemented; packaging being re-designed to reduce material usage, production processes optimised to cut packaging losses or changes made to packaging practices to curtail excessive packaging.

Within the first year of the first SPA, a number of our signatories had found ways to reduce packaging usage, averting about 850 tons/year. In the ensuing 4 years of the first SPA, more initiatives were undertaken, enabling the reduction of an additional 370 - 800 tons of packaging waste per year.

While we had done well in the first SPA, we are on track to doing even better in the second SPA. In the first year of the second SPA, our signatories have implemented initiatives which are projected to reduce a whopping 1,800 tons of packaging waste per year, bringing our annual total amount of waste avoided to 4,800 tons! This is quite an achievement indeed.

Hence, although we are faced with a very challenging target of attaining a total annual reduction of 6,500 tons of packaging waste by 2015 in this second SPA, I am optimistic that we will be able to meet our target by then, thanks to the strong support by the SPA signatories.

I congratulate all the winners of this year's 3R Packaging Awards, and urge all signatories to continue to press on to find new ways to reduce packaging waste. You will find that your efforts will pay dividends in the end as waste reduction measures can often help cut business costs, and even lead to productivity or efficiency gains for your business operations.

INTRODUCTION

The Singapore Packaging Agreement (SPA) was inaugurated in 2007 as a platform for companies along the supply chain to collaborate with each other, as well as with government and non-governmental organisations (NGOs), to reduce packaging waste. The implementation of the SPA is overseen and driven by a Governing Board, comprising senior representatives from industry, government and NGOs. The members of the Governing Board are shown in the Annex.

The first SPA, which lasted from 1 July 2007 to 30 Jun 2012, saw 10,000 tons of packaging waste reduced over 5 years. Based on feedback by participating companies, the SPA had been effective in encouraging signatories to challenge the status quo and review their packaging designs or practices to identify areas for improvement. The SPA had also facilitated this review process by providing signatories with opportunities to exchange ideas and share their experiences on ways to reduce waste.

The signatories of the first SPA had expressed keen interest to continue their participation in a voluntary agreement as they had benefited from the achievements in waste reduction and cost savings. Therefore, when the first SPA expired, a second SPA took its place on 1 July 2012.

One of the key programmes under the SPA to encourage signatories to play an active role in reducing packaging

waste, is the 3R Packaging Awards. Since 2008, the 3R Packaging Awards (Distinction and Merit Awards) have been presented annually to SPA signatories who have made notable achievements and contributions towards the 3Rs (reducing, reusing and recycling) of packaging waste. In 2010, another level of awards, namely, the Platinum and Gold Awards, were introduced to recognise signatories for their sustained efforts in reducing packaging waste. Platinum Awards are presented to signatories who have received Distinction Awards for two consecutive years. Gold Awards are given to signatories who have received Merit Awards (or higher) for two consecutive years.

This booklet features the achievements of the signatories who will receive the 3R Packaging Awards this year from Dr Vivian Balakrishnan, Minister for the Environment and Water Resources, on 2 July 2013 at the Waste Management Symposium 2013.

DISTINCTION AWARD WINNER

Nestlé Singapore (Pte) Ltd

3R
PACKAGING
AWARDS
2013

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As a wholly owned subsidiary of Nestlé S.A. headquartered in Vevey, Switzerland, Nestlé started its operations in Singapore in 1912 and has been building on its success based on these operating principles: to offer Singapore consumers the highest safety and quality standards in food and beverage products; to utilise the most up-to-date technology and accumulated science-based expertise in the manufacture of products; and to fulfill broad responsibility as a corporate citizen by participating in community and social projects that contribute to the development of the country.

Over the years, Nestlé has been producing various household brands including MILO®, NESCAFÉ®, MAGGI®, NESTLÉ® OMEGA PLUS® ACTICOL®, KIT KAT®, KOKO KRUNCH®, HONEY STAR®, PURINA®, FRISKIES®, YANG SHENG LE® and many other market leaders in their respective product categories.

MEASURES TO REDUCE PACKAGING WASTE

In line with its commitment to continually explore ways to reduce packaging waste, Nestlé initiated work with its supplier to reduce the use of packaging materials used for its MILO® 3-in-1 and MILO® Easy Cool 3-in-1 products. The result was the total removal of the outer corrugated cartons, leaving the inner plastic film to protect the laminate, thus resulting in an estimated annual reduction of corrugated paperboard packaging of 1.05 tons.

In an effort to reduce the weight of packaging used, Nestlé also changed the packaging for its MILO® 400g product from tin can to pouch. This was also in response to changing lifestyle and consumer preference. This change in packaging resulted in a 90% reduction in the weight of packaging used, or a net reduction in 93.8 tons of packaging material per year.

The company estimates that, with the above packaging waste reduction initiatives, it can enjoy an overall cost savings of more than \$350,000 too.



Nestlé's YANG SHENG LE® products were originally packed in two layers of packaging – the concentrated herbal chicken soups were contained in a glass jar with metal lid and these glass jars were then further encased in an outer bowl-shaped carton. In October 2012, Nestlé completed its project to reduce packaging material for its YANG SHENG LE® products by eliminating the external bowl-shaped carton encasing the jar which leads to an estimated reduction of paper packaging material by 0.51 ton per year.



In addition, the shelf-ready cartons used to pack 16 jars of YANG SHENG LE® products, were also re-designed and made smaller to accommodate the smaller-sized glass jars, thus reducing each carton's weight by 26%. This translates to about 0.12 ton of paper packaging material avoided annually.



Laminate
inside carton

Laminate film
without carton



OTHER ENVIRONMENTAL INITIATIVES

- Nestlé organised a Chinese New Year road show in the retail business to educate consumers on Nestlé product packaging reduction and other environmental initiatives whilst at the same time gather customer feedback on packaging reduction.
- Introduced a "Let's Go Green" initiative to reduce paper cup waste by providing employees with their own personalised ceramic mugs and encouraging them to use these mugs instead of disposable cups, thus helping to reduce usage of approximately 4,000 paper cups per month.

ST Aerospace Engineering Pte Ltd, a subsidiary of ST Aerospace Ltd, is a global company with more than 7,000 employees around the world and has a global customer base that includes the world's advanced military forces, major airlines and leading freight carriers.

ST Aerospace Engineering Pte Ltd specialises in depot level maintenance, aircraft upgrading, refurbishment, major structural repair and life extension programmes for a wide range of military and general aviation aircraft. It also provides maintenance services for commercial aircraft, including the Lockheed Martin L382, Airbus A320, Boeing 737 and 757. ST Aerospace Engineering Pte Ltd also provides pilot training services and owns a fleet of aircraft, namely Gulfstream 150/550, Eurocopter EC120, Cessna 172 and Learjet 35/45.

MEASURES TO REDUCE PACKAGING WASTE

In the past, ST Aerospace Engineering Pte Ltd has been using a conventional packaging method which uses chemical foam to pack all serviceable and unserviceable aircraft components for return to its clients, after carrying out refurbishment or repair works on the aircraft components. Using chemicals in packaging carries some form of health or safety risks. Recently, ST Aerospace Engineering Pte Ltd switched to a more environmentally friendly and safer way of packing some of the serviceable/unserviceable equipment by utilising a combination of waste materials such as shredded office paper and old newspapers, and used packaging materials (such as bubble packs and twisted brown paper) from imported goods. The rest of the used packaging materials from imported goods which are not reused would be recycled, an improvement over their past practice, which was through disposal of all their used packaging material. These initiatives would not only reduce about 60 tons of packaging waste annually but would also reduce the exposure of its staff performing the packaging function, to hazardous chemicals.

The company also acquired reusable TOTE containers to store chemicals for cleaning detergent used for washing aircraft, thus eliminating the need to dispose of single-use plastic containers. This will result in about 10 tons of plastic waste avoided per year.

In addition, ST Aerospace Engineering Pte Ltd started to recycle tins for containing chemicals used for aircraft maintenance such as aircraft hydraulic fluid, sealants, thinner, paints, etc. It is estimated that with this initiative, 0.86 ton of tin would be recycled annually through its licensed waste collector.



BEFORE
Conventional chemical foam packaging for aircraft components



AFTER
Reusing waste/used materials for packing of aircraft components

OTHER ENVIRONMENTAL INITIATIVES

- ST Aerospace Engineering Pte Ltd conducted programmes to educate its staff on the 3Rs. As a result, usage of office paper was reduced dramatically as more employees chose scanning over photocopying of documents whenever possible, printing on both sides of the paper, and reused envelopes, files and papers. Shredded office paper is also used as packaging material for exporting of goods. These initiatives would reduce paper waste generated by about 40 tons annually.
- ST Aerospace Engineering Pte Ltd invested in a can crusher machine in its Paya Lebar facilities to reduce the size of empty cans, thereby minimising storage space for used metal cans and facilitating the recycling of metal waste at a lower cost. This will be rolled out to their facilities across Singapore in the near future.

DISTINCTION AWARD WINNER

Tetra Pak Jurong Pte Ltd

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Tetra Pak develops, manufactures and markets complete solutions which are designed to be as resource-efficient as possible for the processing, packaging and distribution of food products.

Tetra Pak's factory in Jurong ships packaging material to over 40 countries with about 90% going to South and Southeast Asian markets. It is Tetra Pak's largest packaging materials factory by volume, contributing to about 10% of its global production.

Tetra Pak is committed to running its business in an environmentally sound and sustainable way. As part of that commitment, the company has been implementing initiatives year after year to reduce packaging waste.

MEASURES TO REDUCE PACKAGING WASTE

A. Standardised cleaning of chilled roller

The presence of dust particles on the chilled roller would result in defective packaging material (the chilled roller is used in the lamination process to cool down molten polyethylene that coats the paper). The defective material will be sent for recycling instead of being used to form packages, amounting to packaging material wastage.

To reduce this wastage, Tetra Pak implemented a standardised procedure last year to clean the chilled roller and remove dust particles whenever there is a temporary break in the lamination process.

This new checking and cleaning procedure would help to prevent approximately 2.88 tons of packaging material wastage per year, and result in cost savings of \$75,000 for the company.

B. Recovery of polyethylene strip for reuse at second laminator

In 2009, the factory invested in equipment to enable the recovery of 380 tons/year of polyethylene (PE) strips from one of its two laminators, for reuse. In 2010, the factory went on to implement processes to manually recover 57 tons/year of PE strips from its second laminator for reuse into the production process. This year, the factory improved upon its 2010 initiative by installing equipment to automate the PE strip recovery at its second laminator. Now, about 200 tons of PE can be recovered per year (instead of just 57 tons/year with manual recovery processes) from the second laminator, resulting in an annual savings of \$125,000 on energy costs and \$408,000 in material costs.

C. Recycling of customer's packaging waste

In early 2013, Tetra Pak provided a baler and constructed a storage shelter for a customer in Singapore to facilitate the recycling of unwanted beverage cartons due to defective production or arising from expired products. Through Tetra Pak's support, this manufacturer would be able to recycle over 4 tons of packaging waste per year.



Tetra Pak implemented a standardised procedure to clean the chilled roller during temporary breaks in the lamination process

OTHER ENVIRONMENTAL INITIATIVES

- Every year, Tetra Pak runs a recycling competition through its School Recycling Programme – the largest in Singapore, involving 170 schools from primary to tertiary levels. Last year, Fuhua High Primary School emerged the champion while Edgefield Secondary School was the most creative by making furniture from used beverage cartons.
- From March to May 2013, Tetra Pak conducted a community awareness recycling programme targeted at residents in Jurong to enhance recycling awareness for used beverage cartons and to promote recycling.

MERIT AWARD WINNERS

Asia Pacific Breweries (Singapore) Pte Ltd Chee Seng Oil Factory Pte Ltd

ASIA PACIFIC BREWERIES (SINGAPORE) PTE LTD

Asia Pacific Breweries (Singapore) Pte Ltd (APBS) is a key player in the beer industry and the regional hub for Heineken in Asia-Pacific. It was established in 1931 as a joint venture between Fraser & Neave and Heineken. The company went on to launch its iconic, award-winning Tiger Beer which quickly gained international recognition and, over the years, has added more products to its growing portfolio of quality brews. APBS currently produces a wide variety of premium lagers and popular beers such as Tiger, Heineken, Anchor, ABC Extra Stout and Baron's Strong Brew.

MEASURE TO REDUCE PACKAGING WASTE

In October 2012, APBS undertook an initiative to reduce the amount of glass packaging used for its 640ml Heineken domestic bottle by reducing the thickness of the lower portion of the glass bottle. This reduced the weight of each bottle from an initial 531g to 473g – a 10.9% decrease in weight. This translates to a projected annual glass usage reduction of about 81.43 tons. Besides the direct cost savings that accrue to a reduction in material usage, the initiative also helps the glass manufacturer to reduce its level of energy consumption as less glass is required to produce each bottle.



Original Heineken bottle weighing 531g

Heineken bottle weighing 473g after weight reduction

CHEE SENG OIL FACTORY PTE LTD

Established in 1956, Chee Seng Oil Factory Pte Ltd (Chee Seng Oil) has grown from strength to strength to become a market leader in the condiments industry, winning consumers over with its high quality, cold-pressed, unrefined sesame oil that retains its natural goodness and flavour. The company received international recognition from the International Monde Selection which awarded the company Gold Medals for its high product quality and packaging design from 1988 to 1992 as well as Grand Gold Medals in 2002 and 2003 for marked improvement in product quality.

MEASURES TO REDUCE PACKAGING WASTE

Chee Seng Oil reviewed the packaging used for its Double Pagoda Pure Sesame Oil products (150ml and 250ml). The old packaging for the Double Pagoda Pure Sesame Oil products used to consist of the following: a glass bottle, a metal cap to seal the bottle, a plastic cap over the metal cap to facilitate pouring of the sesame oil once the metal seal is removed, and plastic shrink film label. After re-design, the new packaging now includes the following improvements over the old packaging:

- Elimination of the usage of metal caps;
- Reduction in the glass bottle weight (for 150ml);
- Use of an improved design for the plastic caps to ensure no leakage during pouring of the sesame oil; and
- Switch to the use of a smaller paper label.

This conversion to the use of the new packaging is estimated to not only help the company achieve a net reduction of 3.05 tons/year in the packaging materials used, but would also lower energy consumption and reduce the number of work processes, thus increasing overall productivity.

Moreover, in order to promote recycling among its employees, Chee Seng Oil encourages its staff to deposit packaging waste generated from production containing paper, glass and plastic into recycling receptacles placed at designated collection points, enabling the recycling of about 12.5 tons of paper, 1.5 tons of glass and 0.5 ton of plastic every year.



Original packaging for the Double Pagoda Pure Sesame Oil products

New packaging, with net reduction in weight of materials used

MERIT AWARD WINNERS

CROWN Beverage Cans Singapore Pte Ltd Greenpac (S) Pte Ltd

CROWN BEVERAGE CANS SINGAPORE PTE LTD

CROWN Beverage Cans Singapore Pte Ltd., is a subsidiary of CROWN Holdings, Inc. (CROWN), a leading supplier of metal packaging products worldwide. Supplying both local and international beverage brands, CROWN is the sole aluminium beverage can manufacturer in Singapore. The majority of customers served by the local plant are located within Singapore and west Malaysia.

As an industry leader, CROWN is committed to innovation, developing unique solutions not only to improve product designs, but also to reduce the amount of metal packaging required during manufacturing. In this way the company has been able to decrease the amount of energy and water used during production, at the same time reducing associated emissions.

MEASURES TO REDUCE PACKAGING WASTE

CROWN's efforts to reduce waste include evaluations of both internal manufacturing practices and also those of our suppliers. In November 2012, CROWN began working with its supplier to reduce the amount of packaging used for the aluminium coils imported from Germany. The aluminium base material is used for manufacturing both the ends and body of aluminium beverage cans, and can be very fragile. Traditionally, the aluminium is rolled into coils and then packed in solid pine wood for safe handling and protection against damages during transportation to plants.

Previously, the packaging for the aluminium coils used for making beverage can ends required 168kg of solid pine wood per coil. However, by employing pine in conjunction with *Nolco* (a propylene-based protection system), CROWN was able to reduce the amount of solid wood used to only 122kg per coil. This solution translates to a net reduction of approximately 27% in terms of total packaging material weight with an estimated annual reduction of wood waste of 6.95 tons.

At the same time, CROWN worked with the same supplier to reduce the amount of solid pine used to pack the aluminium coils required for the manufacture of the beverage can body. The new system uses 21.6% less packaging material, resulting in an estimated annual savings of 7.56 tons.

In addition to the above savings, CROWN also switched to only employing reusable plastic pallets when shipping products from its overseas sister plants, where previously wooden pallets and paper packaging had been the container of choice. It is estimated that 811.65 tons of wood waste and 375.06 tons of paper waste are eliminated each year.

The switch to reusable pallets also translated to greater cost savings together with increased customer satisfaction as the plastic pallets are free of the sawdust and splinters commonly occurring with wooden pallets. Additionally, the new pallets are dimensionally more accurate, thus helping to prevent machine stoppages that can reduce manufacturing efficiency.



185kg of packaging material used per aluminium coil (for body of beverage cans)

145kg of packaging material used per aluminium coil (for body of beverage cans)

GREENPAC (S) PTE LTD

Greenpac is a knowledge-based company specialising in providing environmentally friendly packaging solutions in an efficient manner, thereby assisting its clients in reducing waste production and reaping potential cost benefits. The company's principles of finding innovative green solutions are in line with the 3Rs of reduce, reuse and recycle. The company actively encourages its partner companies to discuss and work together to develop workable and cost-effective solutions to reduce packaging waste.

MEASURE TO REDUCE PACKAGING WASTE

The *M844-F20* is a model of wooden crate that was re-engineered by Greenpac and designed specifically for the packaging of expensive, high-tech and sensitive surgical instruments such as the ophthalmic surgical microscope. The re-engineered crate brings about considerable savings on material, freight and storage cost, whilst affording optimal protection to its contents. This is achieved by increasing the versatility of the wooden crate during shipment (it can be positioned upright or laid down) and reducing the amount of wood used, compared to the conventional wooden crate. By reducing the thickness of the side panels from 18mm to 9mm, Greenpac could cut down the wooden material used by 30kg per unit, resulting in an estimated annual wood material reduction of 20 tons.

The new design also increases operational efficiency and productivity through innovative use of an in-built ramp which allows the equipment to be easily loaded and unloaded without the need of using a forklift, making it highly applicable in hospitals and laboratories where such equipment is lacking. There is the additional benefit of improved impact and shock absorption with the use of reusable ratchet belts in place of conventional foams to secure the instruments firmly. The fact that the packaging is reusable and returnable means that up to 55 tons of wood can be saved annually.



M844-F20 wooden crate

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MERIT AWARD WINNERS

Ha Li Fa Pte Ltd
LHT Holdings Ltd

HA LI FA PTE LTD

Founded in 1987 with the goal of producing food of the finest quality and taste for consumers, Ha Li Fa's brand vision of "Life's a Celebration" and slogan "Everyday's a Celebration" revolve around the company's belief of spreading simple joys in life. Coupled with modern production capabilities, this conviction has propelled Ha Li Fa to establish strong footholds in both the local and overseas markets. With time-tested recipes handed down by its founders, Ha Li Fa offers an extensive range of products including fish balls, fish cakes, raw/fried *yong tau foo* dishes and a variety of chicken sausages and ham products.

MEASURES TO REDUCE PACKAGING WASTE

Originally, Ha Li Fa used both a traditional 550mm film roll for vacuum packaging and plastic carrier bags for the manual packing of food products. However, since November 2012 when the company installed its new packaging machine, there has been a gradual switch to using a shorter 480mm film roll for producing pouches for its products. With the shorter film roll, an estimated 1.92 tons of plastic packaging can be reduced annually. This initiative also decreases the spoilage risks since the new film is more resistant to damage, as compared to the old one.

Ha Li Fa uses palm oil for frying its products and the metal tins used to contain the palm oil were simply discarded once they were empty. Since February 2013, Ha Li Fa started recycling the used 20-litre palm oil metal tins, thereby helping to divert an estimated 12.1 tons of metal packaging annually from the disposal facilities. Ha Li Fa also initiated tighter control on the usage of Alkaclean (a cleaning agent) which saw usage fall from 20 drums to 6 drums per month. Ha Li Fa also arranged for its supplier to reuse the 6 drums of 220-litre plastic drums when replenishing the cleaning agent. Such prudence means that 2.4 tons of plastic packaging can be avoided per year, and an equivalent of \$9,360 can be saved by reducing and reusing these plastic drums.



Installation of a new packaging machine which allows less packaging to be used

OTHER ENVIRONMENTAL INITIATIVE

- In January 2013, Ha Li Fa started sending its damaged Surimi (seafood based) products and Okara (soy bean by-products) to a fish farm operator to recycle them into high value fish feed instead of disposing them. This means that 31.2 tons of food waste can be reduced annually, translating to savings of up to \$5,200 in disposal fees.

LHT HOLDINGS LTD

LHT Holdings Ltd is a leading public-listed company that has been in the timber industry for more than 20 years. Established in 1977, LHT has grown to be a leader in the industry and is also one of the largest manufacturing companies of high quality wooden pallets, boxes and crates in Singapore.

As part of its ongoing efforts to reduce waste and to make more efficient use of timber resources, LHT has established Singapore's first wood waste recycling plant equipped with a highly automated system from Germany to produce a series of products made from recycled wood waste.

MEASURE TO RECYCLE PACKAGING WASTE

LHT has recently produced a range of "Innovative Process Product Conversion" (IPPC) pallets that are made from waste wood that has undergone processing with high temperature and high pressure so that they are unlikely to be infested by raw wood pests and compliant with ISPM15. Therefore, these pallets can be used for export purposes. Depending on its customers' requirements, the IPPC pallets can contain between 50% and 100% of recycled wood waste.

By late last year, the IPPC products made up 70% of their production due to increased market acceptance of these products. It is estimated that, in 2012, a total of 24,000 tons of wooden packaging waste were recycled for use into LHT's IPPC products.

Apart from recycling waste wood into IPPC products, LHT has been turning wood waste from industrial sources and tree trimmings (that is, horticultural waste) into door and flooring products since 2000.



"Innovative Process Product Conversion" (IPPC) pallets made from 70% waste wood (left) and 100% waste wood (right)

OTHER ENVIRONMENTAL INITIATIVE

- LHT recycles horticultural waste for use as biomass fuel.

MERIT AWARD WINNERS

Seagate Technology International Starlite Printers (Far East) Pte Ltd Subway Singapore Development Pte Ltd

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SEAGATE TECHNOLOGY INTERNATIONAL

Seagate is a leading provider of hard drives and storage solutions. From servers that form the backbone of enterprise data centres and cloud-based computing, to desktop and notebook computers that fuel personal productivity, Seagate's products help to store, share and protect valuable digital content. The company offers the industry's widest choices of hard disk drives, solid state drives and solid state hybrid drives. In addition, it offers an extensive line of retail storage products for consumers and small businesses, along with data recovery services for any brand of hard drive and digital media type.

MEASURE TO REDUCE PACKAGING WASTE

Seagate uses an outer layer of plastic packaging and an inner layer of polyethylene-aluminium composite packaging material for its semi-finished goods and final products for overseas shipment and local distribution. Packaging material is sometimes damaged and unable to be sealed during the automated packing of finished products. Such packaging is considered defective and needs to be disposed of. To avoid unnecessary wastage of materials arising from defective packaging, a protective layer of padding is installed on the platforms off the packing conveyor systems to effectively reduce damage of packaging material and improve the sealing process. This initiative is estimated to cut polyethylene-aluminium waste by 9.9 tons and plastic waste by 3.9 tons annually, thereby saving the company about \$150,000 per year in packaging material costs.



Defective packaging



Good sealing packaging



Protective layer of padding along the platforms off the conveyor systems

STARLITE PRINTERS (FAR EAST) PTE LTD

Since its humble beginnings as a small print shop established in 1970, Starlite Printers has grown its business through the years. Building on the belief of creating value and sustainable growth in its business partnerships, Starlite continues to receive affirmations from its customers as a leading innovator in the printing field.

MEASURES TO REDUCE PACKAGING WASTE

Recently, Starlite Printers started an initiative to buy back used wooden pallets from one of its customers for reuse in its supply chain, thereby reducing the amount of virgin packaging materials used. This provides a win-win solution for both Starlite Printers and the customer since Starlite Printers not only gets to obtain packaging at a lower cost but the customer also gets paid for waste that was prepared to be thrown away. This measure is projected to help Starlite Printers save 102.62 tons of wood waste and over \$30,000 in packaging material costs per year.

In March 2013, the company decided to switch to the Trillian thermal plates for printing which required the use of less printing chemicals as compared to conventional thermal plates. It is estimated that, with this switch, 5,100 litres less chemical would be needed per year, and consequently, fewer plastic bottles would be used for the printing chemicals (effectively reducing about 0.26 ton of plastic packaging waste each year).

OTHER ENVIRONMENTAL INITIATIVE

- In August 2012, Starlite Printers continued to organise its annual Packaging Seminar for suppliers, subcontractors and customers to create awareness of the different means available to reduce packaging waste, as well as educate them on the impact of waste on the environment and the benefits of reducing waste.

SUBWAY SINGAPORE DEVELOPMENT PTE LTD

In 1965, Fred DeLuca and Peter Buck started the idea of opening a submarine sandwich shop to meet DeLuca's goal of earning enough from the business to pay his tuition fee for medical school. Business began taking off, and in 1968, the sandwich shop was named "SUBWAY®". Since 2007, SUBWAY® has been consistently appearing in Entrepreneur magazine's Top 500 Franchises list.

The company is currently one of the largest fast food chains worldwide, with over 39,000 restaurants in 102 countries, of which more than 100 are located in Singapore. SUBWAY® is constantly working at improving its menu by offering healthier options for its customers and providing a wider range of tasty sandwiches.

MEASURE TO REDUCE PACKAGING WASTE

In the past, SUBWAY® had been using disposable Veltone paper trays to weigh ingredients (e.g. chicken and beef) for its sandwiches. Since last year, the company has decided to do away with the Veltone trays and substitute them with reusable plastic scoops instead. Now, service staff need not weigh the ingredients, but can simply estimate the correct amount of ingredients by using the scoops. The switch to the use of reusable plastic scoops is estimated to result in a reduction of 6.2 tons of paper waste and cut costs by approximately \$30,000 each year.



Replace disposable trays with reusable plastic scoops



MERIT AWARD WINNERS

**Sunfresh Singapore Pte Ltd
Toshiba TEC Singapore Pte Ltd**

SUNFRESH SINGAPORE PTE LTD

Sunfresh's core business is the production, merchandising and selling of blended fruit juices to airlines, retailers, hotels, restaurants and caterers throughout the Asia-Pacific region. Since it entered into the fruit juice business in 1981, the company has increased its processing capacity multi-fold over the past years to cater to the increasing demand for premium fresh fruit juice and adapt to the fluctuating changes of consumer trends.

In line with its firm commitment to the Singapore Packaging Agreement, Sunfresh has been undertaking measures to reduce packaging waste over the past few years.

MEASURE TO REDUCE PACKAGING WASTE

In February 2013, Sunfresh eliminated the use of secondary plastic liners (high density polyethylene plastic bags) for packaging disposable cups for delivery to the airlines. It is estimated that this measure would help reduce plastic packaging wastage by around 2.81 tons annually and save \$9,720 per year.



Use of secondary plastic liners

Secondary plastic liners removed

TOSHIBA TEC SINGAPORE PTE LTD

Toshiba TEC Singapore provides a wide range of printers, point-of-sale terminals and information processing systems for use in the retail and financial industry, as well as in supply chains. The company believes in the principle of "monozukuri" – creating quality products with pride and passion while always keeping the customers in mind. As part of its corporate policy, the company is committed to placing care for the environment as a priority in all its business activities.

MEASURE TO REDUCE PACKAGING WASTE

Originally, suppliers delivered cartons of spare parts to Toshiba TEC on wooden pallets which are discarded after use. However, since January 2013, Toshiba TEC eliminated the use of wooden pallets for the delivery of items that come in small quantities and replaced them with reusable plastic pallets that passed the load tests. A projected total of 20.7 tons of wooden pallet waste can be avoided annually, reaping disposal cost savings of \$1,590.



Wooden pallet

Plastic pallet

MERIT AWARD WINNERS

Winrigo (S) Pte Ltd Wyeth Nutritionals (Singapore) Pte Ltd

WINRIGO (S) PTE LTD

Established since 2001, Winrigo is one of Singapore's pioneering companies in green technology, specialising in manufacturing eco-products made from waste materials. At the heart of Winrigo's eco-product development is a proprietary R3plus technology, through which the company produces bio-composite plastic, composite material made from recycled plastics reinforced by natural fibres derived from wheat, rice or coconut husks. Winrigo has also created its own line of consumer products under the brand L'earth.

MEASURE TO REDUCE PACKAGING WASTE

Winrigo started working with Calfarme (Singapore) Pte Ltd, a leading company in washroom hygiene and bio-enzymatic cleaning products, to change the packaging of their foam wash bottles from high density polyethylene to 80% lighter, oxo-biodegradable packaging which occupies less space, thereby enabling more packs to be transported per trip. This change is estimated to result in a reduction in usage of plastic by 3.6 tons per year with cost savings of up to \$5,000 per annum.



Original packaging for foam wash products



Packaging which is 80% lighter in weight and is oxo-biodegradable

OTHER ENVIRONMENTAL INITIATIVES

- Winrigo also organised the "11th SEF Oratory Competition on the Environment 2012" with the aim of educating primary school students on environmental issues and waste reduction. LoveEarth Eco Tumblers were provided instead of disposable plastic cups, saving about 4,000 disposable cups or about 72kg of plastic waste during this event.
- Since January 2013, Winrigo has been using 30% - 50% recycled plastics together with rice husks and wheat husks to produce bio-composite clothes hangers while sourcing for retail partners like GreenBox to promote the sales of such eco-products. This initiative would help to reduce 2.3 tons of virgin plastic material per year.

WYETH NUTRITIONALS (SINGAPORE) PTE LTD

Wyeth Nutritionals (Singapore) Pte Ltd (Wyeth) develops premium-quality nutritional products scientifically designed to meet the needs of infants and young children, as well as pregnant and lactating mothers. For nearly a century, Wyeth has carried out rigorous clinical and scientific research, and world class manufacturing and product safety standards to drive scientifically-sound solutions that offer parents confidence, and help nourish children to support their healthy growth.

MEASURES TO REDUCE PACKAGING WASTE

Wyeth uses many wooden pallets for the local distribution of its goods and products, but the space on these pallets were often not fully utilised. Thus to reduce the number of pallets needed, the company decided to alter its wooden pallet size and the stacking configuration to fully optimize the pallet surface area occupied by its products. Due to this change, the projected annual wood waste avoided is about 4.3 tons.

Wyeth also reduced the width of the shipper carton used to contain its twin pack products (2 x 600g & 2 x 650g) by 8mm, resulting in a lighter shipper carton weighing 663g compared to the 669g previously, saving an estimated 0.15 ton per year of paper waste as less corrugated board is used. Moreover, Wyeth reduced the height and weight of its 1.6kg cans for its S-26 milk products - from 205mm to 197mm and from 191.05g to 183.6g, respectively. The weight of their shippers was also reduced from 403g to 392g to accommodate the smaller sized cans. A total of 0.41 ton/year of tin waste and 0.1 ton/year of paper waste can be avoided from this initiative.

Previously, Wyeth would dispose of all the empty cans randomly picked out for quality inspections. Starting from March 2013, Wyeth changed its practices so that all such cans picked out for inspections, which passed the quality assessment, would be used in production. Wyeth estimates that this could potentially reduce tin waste by 7.2 tons/year.



Original S-26 product

Product after height reduction

OTHER ENVIRONMENTAL INITIATIVE

- In July 2012, Wyeth promoted the recycling of ink cartridges for photocopiers and printers by creating awareness amongst employees through in-house weekly updates. Cartridge recycling boxes were set up within the company to collect ink cartridges. This scheme is estimated to potentially reduce cartridge waste by 0.6 ton/year and to save on disposal costs by \$1,800 each year.

As one of the pioneer companies to sign the Singapore Packaging Agreement since the Agreement's inception in 2007, Nestlé has been continually looking for ways to cut down the company's packaging material usage.

For their sustained efforts in reducing waste, Nestlé has been clinching the Distinction Award every year since 2009. Some of their packaging waste reduction initiatives include the following:

DIMENSIONAL REDUCTIONS

- i) Reduced the dimensions of corrugated carton boxes used to pack the local MILO® 900g and 1kg soft packs from 480mm x 370mm x 190mm to 470mm x 350mm x 190mm.
- ii) Reduced the height of MILO® Hot Mix vending pouch from 320mm to 315mm.
- iii) Reduced the height of cartons used to contain soya sauce products from 360mm to 340mm.
- iv) Reduced the height of MILO® refill pouch for 900g soft packs from 315mm to 310mm.
- v) Reduced the thickness of its 1.25kg, 1.4kg and 1.65kg MILO® tin cans from 0.25mm to 0.22mm.

CHANGES TO PACKAGING PRACTICES

- i) Eliminated the use of paper cartons to pack its MILO® 900g and 3-in-1 soft packs.
- ii) Requested suppliers to eliminate the use of carton boxes and supply the laminate reels without packaging.
- iii) Changed the packaging for its MAGGI® Chef's Secret concentrated seasoning from a plastic tub to a plastic pouch.

CHANGES TO PRODUCTION PROCESSES

- i) Increased the length of laminate packaging per reel to reduce the frequency of changeover of laminate reels required in the production processes for its MILO® Hi-Calcium, Easy Cool 3-in-1 sachets, and MILO® 3-in-1 sachets.
- ii) Modified the production line of its MILO® soft pack to improve efficiency of operations by bringing down laminate losses from 6% to 1-2%.



MILO® 900g refill pouch packaging with its height reduced from 315mm to 310mm

PLATINUM AWARD WINNER

Tetra Pak Jurong Pte Ltd

3R
PACKAGING
AWARDS
2013

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One of the strongest supporters of the Singapore Packaging Agreement, Tetra Pak has been consistently improving its packaging waste reduction. The company is pro-active in implementing step-changes in its manufacturing processes as well as educating consumers on the recycling of used beverage cartons.

Tetra Pak has garnered the Distinction Award every year without fail, since the 3R Packaging Awards were first introduced in 2008 – a testament to their strong environmental commitment and exemplary efforts in reducing packaging waste.

Here are some of the measures implemented by the company over the past few years:

- i) Implemented a new practice for preparation of the paperboard packaging material for the printing process so as to reduce wastage of paper.
- ii) Instead of removing the first 5m of printed paperboard for the lamination process as a standard practice, the full roll of printed paperboard would be used if no defects are spotted visually, thereby eliminating unnecessary wastage of paper.
- iii) Formalised a procedure requiring all technicians to use scrap paper for the setup of laminating machines instead of using new paperboard.
- iv) Simplified and shortened its laminating machine start-up process so as to reduce the amount of polyethylene (PE) that would drool away and be wasted.
- v) Improved the process control of the laminating machines to coat a more precise amount of PE during the production process, thereby reducing PE wastage.
- vi) Switched to a flying setup when changing the width of PE coating for the paperboard during the lamination process, so that the production line would not need to be stopped, thereby reducing both PE and paper waste.
- vii) Reduced the width of PE strip (plastic coating that is pulled over the edge of paperboard layer) of the beverage carton while it is being laminated, from 13mm to 10mm.
- viii) Invested in new equipment so that PE trim could be recovered from one of its laminating machines, for reuse in the packaging production process.
- ix) Undertook a project to refine processes to reduce lamination material wasted during packaging.
- x) Implemented processes to manually recover PE trim for reuse in the packaging production process at its second laminating machine.



Simplified and shortened the laminating machine start-up process so that less polyethylene would drool away and be wasted

GOLD AWARD WINNER

Asia Pacific Breweries (Singapore) Pte Ltd

Asia Pacific Breweries (Singapore) Pte Ltd (APBS) uses glass and aluminium for the production of bottles and cans for the packaging of beer. In order to meet the growing demand of local consumers as well as overseas markets, APBS requires vast quantities of packaging material to be supplied yearly for its products. Thus, reducing the usage of these packaging raw materials at source, and recycling packaging resources can make a significant impact on waste reduction.

Since 2007, the company has implemented several packaging reduction measures including:

- i) Reducing the domestic Tiger Quart bottle glass weight from 520g to 500g.
- ii) Reducing the thickness of the base of the 330ml and 323ml aluminium cans from 0.285mm to 0.28mm (and subsequently, to 0.275mm) for all its canned drinks.
- iii) Reducing all bottle partition boards used for export of canned beer, from 600g to 500g.
- iv) Replacing the use of one-way paper cartons with returnable plastic containers for the packing of multi-pack products and recycling the paper labels stripped from recycled glass bottles during the washing process.



Reduction in thickness of the base of the aluminium cans

GOLD AWARD WINNER

CROWN Beverage Cans Singapore Pte Ltd

3R
PACKAGING
AWARDS
2013

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As a global leader in the metal packaging industry, CROWN Holdings, Inc. (CROWN) has led the way in reducing the amount of metal necessary to manufacture consumer packaging, improving productivity, developing new manufacturing processes, raising packaging performance standards, increasing functionality and improving safety throughout its operations. CROWN is committed to continuous improvement in product design and manufacturing practices to provide better outcomes for the human and natural environment both now and in the future.

CROWN has been reducing material consumption in its manufacturing processes and supply chain; some past measures implemented include reducing the thickness of its aluminium cans and tightening process controls to ensure uniformity in can thickness and working with a supplier to switch from using non-recyclable hollow protective plastic boards to recyclable stretch wrap film for the protection of raw aluminium. In addition, transport packaging materials such as paperboard and straps were either substituted with recyclable material or reduced in terms of material usage.



A typical CROWN beverage can



Paperboard and 4 plastic straps used as protective packaging for transport purposes



Shrink wrap and 2 plastic straps used as protective packaging

Greenpac was started in September 2002 with the mission of helping its clients re-engineer their packaging processes by providing innovative, holistic solutions for more efficient and environmentally friendly packaging to achieve bottom-line savings. The company works with strategic suppliers to customise environmentally friendly packaging materials according to the specific needs of each individual customer.

An example of Greenpac's past efforts to provide its customers with environmentally preferable packaging solutions was to re-engineer the wooden crates for medical instruments, making them 21% lighter in weight than the conventional crates, and collapsible for easy storage and reusability. Made from 100% plywood which does not require fumigation to eliminate pests, it comes with interlocking features that obviate the need for metal screws, therefore facilitating recycling of these crates.



Re-engineered crate can be collapsed for easy storage and return for reuse



Erected re-engineered crate with skid-mates and edge guides to improve protection and shock absorption

GOLD AWARD WINNER

Ha Li Fa Pte Ltd

3R
PACKAGING
AWARDS
2013

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Ha Li Fa signed the Singapore Packaging Agreement in 2009 and has since been actively implementing initiatives to reduce packaging for its products.

Some of the measures the company has taken in the past to cut waste include:

- i) Switching from using plastic bags of 35 microns in thickness and 34" x 28" in size to thinner and smaller plastic bags (30 microns in thickness and 24" x 26" in size), for containing 10kg batches of its products.
- ii) Reducing the height of the carton boxes used for containing all its ham products, from 165mm to 115mm.
- iii) Replaced the plastic carrier bags with plastic containers, which are washed and reused, for delivery of products to its customers.



Reusable plastic tray for delivery of products

Returnable plastic pallet for transportation of ingredients

In 1989, Starlite Printers was set up in Singapore with the intention of being the regional hub of the ASEAN market, specialising in printing and manufacturing of high quality paper packaging, labels, manuals and instruction booklets for various products. As part of its commitment to the Singapore Packaging Agreement, Starlite Printers has been taking measures to reduce its packaging usage.

For example, since last year, the company has switched from double-walled to single-walled corrugated carton boxes for the packing of printed products for distribution to clients and also engaged a recycler to collect paper packaging products containing printing defects for recycling, instead of simply disposing them.

In another initiative, Starlite Printers requested its paper supplier to eliminate Kraft paper packaging to separate and pack each lot of 100 sheets of paper, leaving behind only the plastic shrink wrap for holding the paper stacks together rather than use both Kraft paper and plastic shrink wrap packaging.



Double-walled
carton box used
previously

Single-walled
carton box now
used for packaging
of printed products

GOLD AWARD WINNER

Subway Singapore Development Pte Ltd

3R
PACKAGING
AWARDS
2013

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Operating in more than 100 stores across Singapore, SUBWAY® is one of the largest quick service restaurant chains here, serving customised and tasty sandwiches.

With several million pieces of the SUBWAY® paper wrap being used each year for all of SUBWAY®'s sandwiches, SUBWAY® has been looking for possible ways to reduce its packaging usage by making changes to its paper wrap. In 2008, SUBWAY® reduced the thickness of the paper wrap from 33gsm to 30gsm, thereby saving 3.5 tons of paper annually. In 2012, the company went one step further and reduced the size of the paper wrap, saving an additional 15.75 tons of paper per annum.



Reducing the dimensions of SUBWAY®'s paper wrap

Sunfresh Singapore has been a signatory of the Singapore Packaging Agreement since 2007. It has been constantly looking for ways to reduce packaging waste so as to make a positive impact on the environment.

Listed here are some of the past initiatives which have been implemented by the company:

- i) Decreased the proportion of corrugated cardboard boxes used from 20% to 3% so that about 97% of all Sunfresh products are supplied in plastic returnable trays.
- ii) Switched from high density polyethylene to polyethylene terephthalate for its products in 1L and 250ml bottles.
- iii) Packing of fruit juices in paper drink cartons without plastic spout cap.
- iv) Used large carton bins instead of carton boxes to store oranges for production of orange juice, cutting paper wastage.
- v) Reduced weight of plastic cups supplied to airlines from 4.7g to 4.4g.
- vi) Reused used paper cartons as supporting base for transportation of goods and as a secondary cover for finished products instead of new cardboard paper.
- vii) Reused plastic bags from the primary packaging of fruit juice concentrates for the disposal of orange peel and other production waste.



Reuse of plastic bags for production waste



Reduced weight of plastic cups supplied to airlines



Reuse of paper cartons for logistical purposes

GOLD AWARD WINNER

Winrigo (S) Pte Ltd

3R
PACKAGING
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Being one of Singapore's pioneer companies in producing eco-products, Winrigo has been collaborating with partner companies to manufacture products made from waste materials or by-products.

In 2011, it collaborated with Prima Food Pte Ltd, Spring Singapore, Singapore Environment Council, Singapore Manufacturer's Federation and Singapore Institute of Manufacturing Technology to recycle wheat bran - a by-product of Prima Limited's flour milling process - turning it into bio-composite cake knives and bags for use at the PrimaDeli bakery outlets. These replaced the conventional plastic cake knives and bags, thereby reducing virgin plastic material usage by 0.58 ton annually.

In 2012, Winrigo worked with Boncafé International Pte Ltd to find ways to recycle the latter's coffee silverskin waste, a by-product of the coffee roasting process. More than 10 tons of this waste is produced each year at Boncafé's manufacturing plant, so both companies undertook trials and tests to experiment on its possible uses instead of simply throwing it away. They successfully utilised the waste in making tumblers and stirrers which were used as marketing products for both companies, recycling about 2 tons of the waste in the whole process.



Bio-composite cake knives and bags produced from its wheat bran

GOLD AWARD WINNER

Wyeth Nutritionals (Singapore) Ptd Ltd

A company with an established presence in Singapore, Wyeth supplies a whole range of nutritional products for adults and toddlers. Its commitment in ensuring product excellence is an affirmation of the company's dedication in providing products that consumers can trust.

Wyeth has been continually reviewing and improving its packaging processes, and seeking and undertaking methods to reduce waste output. Here are some of the initiatives which earned Wyeth the 3R Packaging Awards in previous years:

- i) Reduced the thickness of the shipper cartons used to pack its canned products for both local and overseas markets from 712gsm to 512gsm.
- ii) Packed its products in-house instead of engaging an external packing service provider, hence reducing the number of cartons used to ship the products to the external packer.
- iii) Changed the design for one of its products and reduced the length of its pouch laminate from 230mm to 225mm.
- iv) Reduced the height of its 900g tin cans used to contain milk products from 173mm to 163mm, which also resulted in smaller corrugated carton boxes needed to transport the shortened cans.
- v) Reduced the thickness of the aluminium lids used on its tin cans (easy open ends) from 0.29mm to 0.23mm.
- vi) Required all of its packaging suppliers to use reusable plastic pallets instead of wooden pallets for the supply of packaging materials to its manufacturing plant.
- vii) Replaced interim carton boxes with new bulk shipper cartons which can contain more items per trip for transporting semi-finished products (infant formula in pouches) to the contractor to be triple-packed.
- viii) Canned milk products which are exported to the Australian market are packed in-house and replaced regular slotted container carton boxes with wrap-around carton boxes which use less material.
- ix) Folding carton boxes and corrugated shipper carton boxes from the suppliers of materials to Wyeth's manufacturing plant are recycled after use.



Aluminium lids with reduced thickness of 0.23mm



The new tin can is 10mm shorter in height compared to the old tin can

PARTICIPATION FORM

Form for participation in the Second Singapore Packaging Agreement

I, (Name) _____, (Designation) _____, represent (Name of organisation/company) _____ in signing the **Second Singapore Packaging Agreement (SPA)** which takes effect from 1 July 2012. I understand that by signing this form, I am agreeing to the commitments contained in the SPA (the main SPA commitments are stated overleaf).

Signature: _____ Date signed: _____

Contact no(s): _____ Email address: _____

Brand name(s) covered by the organisation: _____

Main product(s): _____

Main type(s) of packaging material(s) used: _____

Nature of business: Manufacturing / Services / Others (please specify)* _____

**please delete accordingly*

Please scan the completed form and email the soft copy to the Singapore Packaging Agreement Secretariat at spa@nea.gov.sg. **Please note that all applications to join the Singapore Packaging Agreement are subject to approval by the Singapore Packaging Agreement Governing Board.**



OBJECTIVES OF THE SINGAPORE PACKAGING AGREEMENT

The objectives of this Packaging Agreement are to:

- i) reduce packaging waste arising from consumer products;
- ii) raise community awareness on packaging waste minimisation; and
- iii) introduce supply chain initiatives that foster the sustainable use of resources in packaging

MAIN COMMITMENTS

- i) Work together with other signatories to meet the following targets:
 - a. a total annual reduction of 6,500 tons of packaging waste in 2015, with 2007 as the base year, and
 - b. bring on board a total of 315 signatories by 2015
- ii) Contribute data on packaging materials consumed, packaging waste reduced and/or recycled, where available
- iii) Follow the Singapore Environmental Code of Practice for the Packaging of Consumer Goods to ensure that environmental considerations are taken into account in packaging decisions
- iv) Develop and implement programmes to raise consumer awareness & educate consumers on the need to reduce waste from packaging
- v) Promote the Singapore Packaging Agreement within its organisation
- vi) Develop sustainable markets for reused/recycled packaging materials



GOVERNING BOARD MEMBERS

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Honorary Chairman
Packaging Council of Singapore

DEPUTY CHAIRMAN
MR SUNNY KOH
Honorary Chairman
Singapore Manufacturing
Federation,
F&B Industry Group

MR WONG MONG HONG
Immediate Past President
Singapore Food Manufacturers' Association

MR RODNEY GOH
Vice President
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MR ONG LYE HUAT
Head of EHS and Security
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Regional Sustainability Manager
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NTUC FairPrice Co-operative Ltd

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Site Safety, Health and
Environmental Manager
Tetra Pak Jurong Pte Ltd

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Managing Director
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Consumer Products Pte Ltd (UICCP)

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