



**SINGAPORE
PACKAGING
AGREEMENT**

*Celebrating 10 years of
industry-government collaboration in
reducing packaging waste*

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ABOUT THE SINGAPORE PACKAGING AGREEMENT (SPA)

The Singapore Packaging Agreement (SPA) is a joint initiative by the government, industry and non-governmental organisations (NGOs) to reduce packaging waste, which constitutes about one-third by weight of domestic waste. Launched in 2007, the SPA enables various parties along the supply chain to come together to share best practices and find cost-effective solutions to reduce waste. The signatories of the SPA also work together to educate businesses and consumers on packaging waste minimisation. For more information about the SPA, please visit

www.nea.gov.sg/SPA

KEY MILESTONES OF THE SPA



17 JULY 2008

First CEOs' Luncheon – these luncheons are now held regularly to provide a platform for networking and sharing of best practices on packaging waste reduction



1 OCTOBER 2009

Extension of the scope of SPA beyond F&B packaging to cover all types of product packaging

1 JULY 2012

Commencement of second SPA



1 JULY 2015

Extension of the validity period of the second SPA to 30 June 2020



22 OCTOBER 2015

Launch of the packaging benchmarking database - companies can now see the potential for reducing their packaging by comparing their product packaging weight against the benchmarks in the database



5 JUNE 2007

Signing of the first Singapore Packaging Agreement (SPA), which for a start, targeted food and beverage (F&B) packaging



3 NOVEMBER 2008

First 3R Packaging Awards to recognise notable achievements by signatories in reducing packaging waste

25 & 26 OCTOBER 2010

Asia Sustainable Packaging Summit – this conference was jointly organised with the Packaging Council of Singapore, to rally the packaging industry to meet challenges through sustainable packaging



5 JUNE 2017

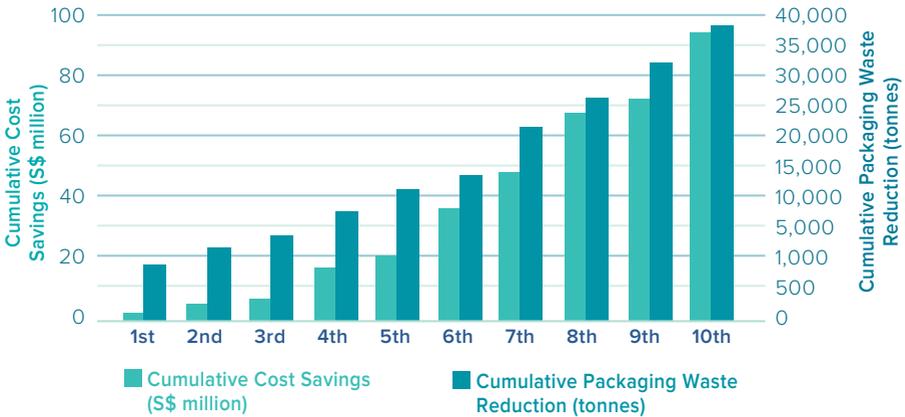
- 10th Anniversary of the SPA
- Launch of Logo for Products with Reduced Packaging (LPRP)
- Renaming of 3R Packaging Awards to SPA Awards

OBJECTIVES OF THE SPA

- » Reduce packaging waste arising from consumer products
- » Raise community awareness on packaging waste minimisation
- » Introduce supply chain initiatives that foster the sustainable use of resource in packaging

ACHIEVEMENTS BY THE SPA SIGNATORIES

The signatories have made commendable progress in waste reduction. Since the launch of the Agreement in 2007, the signatories have cumulatively reduced close to 39,000 tonnes of packaging waste with cumulative savings of about S\$93 million in the material costs of locally consumed products.



Every year, awards are presented to the SPA signatories in recognition of their notable efforts and achievements in reducing packaging waste. The next section documents the award-winning packaging waste reduction initiatives implemented by the signatories over the past 10 years.





SPA: REDUCING PACKAGING WASTE SINCE 2007 – INITIATIVES BY THE SPA SIGNATORIES

ABBOTT

Abbott continuously strives to provide products and technologies in nutrition, diagnostics, medical devices and branded generic pharmaceuticals to help people live their best possible life through the power of health.

REDUCTION IN TRANSPORT PACKAGING

In March 2014, Abbott removed the cardboard partitions and used lighter U-shaped holding trays (U-trays). The height of the carton box was also increased to allow more overcaps to be packed in one box, resulting in fewer boxes required and overall reduction in packaging waste.

Abbott further reduced the material required for packing overcaps in 2016 by utilising a mechanised system to pack its 127mm-diameter-can overcaps. This allowed more caps to be packed into a bigger box, and eliminated the need for U-trays.



Original packing method using cardboard partitions



New packing method using U-shaped holding tray

In July 2014, Abbott altered its packaging method for finished goods by removing the top plastic sheet cover.



Original packaging method with top plastic sheet



New packaging method without top plastic sheet

REDUCTION IN MATERIAL USE FOR CAN PRODUCTS

Since December 2015, Abbott reduced the weight of the plastic overcaps for its 127mm-diameter-can products from 13.1g to 7.0g by changing the material from low density polyethylene (LDPE) to polypropylene (PP).

Abbott implemented a similar initiative for their 99mm-diameter can products in August 2016 and reduced the weight of the plastic overcaps from 7.3g to 4.2g.



127mm-diameter cans with heavier overcaps



127mm-diameter cans with lighter overcaps

Abbott also switched from penny-lever end lids to peel-off end lids, reducing the weight of the cap from 58.5g to 20.2g in July 2016.



Can with old, heavier penny lever-end lid



Can with new, lighter peel-off end lid

ASIA PACIFIC BREWERIES (SINGAPORE) PTE LTD

Asia Pacific Breweries (Singapore) Pte Ltd (APBS) is the largest and most sustainable brewery in Singapore and brews a wide portfolio of beers and ciders including Tiger, Heineken, Strongbow that people love and enjoy.

REDUCTION IN TRANSPORT PACKAGING

By March 2008, all partition boards used for export of canned beer were reduced in weight from 600g to 500g.

APBS also replaced the use of one-way paper cartons with returnable plastic containers for packing multi-packs in 2009.



Replacement of one-way paper cartons with returnable plastic containers



Tiger Quart glass bottle

REDUCTION IN MATERIAL USE FOR GLASS BOTTLES

APBS reduced the weight of Tiger Quart bottle from 520g to 500g in June 2008 and the weight of 640ml Heineken domestic bottle from 531g to 473g in October 2012.

In 2012, APBS started recycling paper labels from returned glass bottles, instead of disposing them.



Original Heineken bottle weighing 531 grams



Heineken bottle weighing 473 grams after weight reduction

In 2015, the thickness of bottle caps was reduced from 0.23mm to 0.22mm, and the weight was reduced from 2.128g to 2.067g.



New and lighter bottle caps

REDUCTION IN MATERIAL USE FOR ALUMINIUM CANS

APBS made continuous efforts to reduce the amount of aluminium packaging waste generated from its canned products:

- » Thickness of its 330ml and 323 ml aluminium cans was gradually reduced from the original 0.285mm in December 2007 to 0.270mm in 2015
- » Diameter of can lids for all its 320ml, 330ml, 323ml and 500ml aluminium cans was reduced from 66mm to 56mm through partnership with CROWN Beverage Cans Singapore Pte Ltd in 2013, decreasing the weight of each aluminium can by 0.9g
- » Weight of its 500ml aluminium cans was reduced from 14g to 13.8g by reducing the thickness of the cans from 0.285mm to 0.280mm in 2016.



Original aluminium can with diameter of 66mm



New aluminium can with reduced diameter of 56mm



New and lighter 500ml aluminium cans



New and lighter 323ml and 330ml aluminium cans with thickness of 0.270mm

BONCAFÉ INTERNATIONAL PTE LTD

Boncafé International Pte Ltd (Boncafé) is a home-grown coffee company founded in 1962 and has become a leading gourmet coffee manufacturer and supplier in South-east Asia and the Middle East.

REDUCTION IN MATERIAL USE FOR PILLOW BAG PACKAGING

In 2008, Boncafé reduced the thickness of its packaging for gourmet blends from 140 microns to 120 microns, without compromising the quality of the packaging. This initiative was extended to instant coffee packaging for coffee machines in 2009, reducing the thickness from 140 microns to 100 microns.



New instant coffee packaging with 100 microns thickness

In September 2013, Boncafé reduced the thickness and size of its polyethylene-aluminium packaging for its ground coffee from 120 microns to 100 microns, and from 31.5cm to 28cm respectively.



BEFORE: Old packaging for ground coffee



AFTER: New packaging with reduced thickness and size

REDUCTION IN MATERIAL USE FOR COFFEE POUCH

In 2008, thickness of filter paper material for coffee pouch used in aircrafts was reduced from 25.5 gsm to 21 gsm.



Filter paper pouch material

REDUCTION IN TRANSPORT PACKAGING

In 2011, Boncafé switched from paper carton boxes to carton trays and plastic shrink wrap for transportation of its 200g, 100g and 50g jars of instant coffee, resulting in overall reduction of packaging material.



BEFORE: Paper carton boxes



AFTER: Carton trays with plastic shrink wrap

RECYCLING OF PACKAGING WASTE

In March 2015, Boncafé started collecting polyethylene-aluminium packaging waste for recycling, instead of disposal at incineration plants.



Collection of polyethylene-aluminium packaging waste generated from the coffee packaging process for recycling

BONCAFÉ INTERNATIONAL PTE LTD AND WINRIGO (S) PTE LTD

Between October 2010 and January 2012, Boncafé worked together with Winrigo (S) Pte Ltd, a green technology provider that offers solutions to recycle waste materials e.g. coffee silverskin (a by-product from coffee roasting process) into recyclable, oxo-degradable and bio-composite plastic tumblers and stirrers.



Tumblers made from a composite of coffee silverskin waste and recycled plastic

CARLSBERG SINGAPORE PTE LTD

Since its establishment over 30 years ago, Carlsberg Singapore Pte Ltd (Carlsberg Singapore) has evolved to become a one-stop dynamic provider of beer, stout and cider.

REDUCTION IN MATERIAL USE FOR CLUSTER PACKAGING

In the fourth quarter of 2015, Carlsberg Singapore changed the cluster packaging for its 6-pack beer from paper carton to a lighter plastic shrink wrap made out of recyclable low density polyethylene (LDPE) and linear low density polyethylene (LLDPE), resulting in packaging waste reduction. Carlsberg Singapore also extended this initiative to two of their brands, SKOL beer and Jolly Shandy drinks in 2016.



BEFORE: Old cluster packs with paper carton packaging



AFTER: New cluster packs with plastic shrink wrap packaging

CHAROEN POKPHAND INTERTRADE SINGAPORE (PTE) LTD

Charoen Pokphand Intertrade Singapore (Pte) Ltd is a subsidiary of Charoen Pokphand Foods PCL, and carries a wide range of ready-to-eat frozen chicken & prawn products in Singapore.

REDUCTION IN MATERIAL USE FOR TRANSPORT PACKAGING

In April 2016, CP Intertrade reduced the dimensions of the carton box used to pack and deliver its Stir Fried Chicken with Holy Basil and Chicken Panang Curry and also removed the partition within the box, leading to overall weight reduction from 332g to 215g.



BEFORE: Larger carton box with cardboard partition previously used to pack the products



AFTER: New, smaller carton box with no partition

CHEE SENG OIL FACTORY PTE LTD

Established in 1956, Chee Seng Oil Factory Pte Ltd (Chee Seng Oil Factory) has grown to become a market leader in the condiments industry, winning consumers over with its high-quality sesame oil.

REDUCTION IN MATERIAL USE FOR TRANSPORT PACKAGING

In 2013, Chee Seng Oil Factory eliminated the metal cap, reduced glass bottle weight (for 150ml) and used smaller size paper labels instead of shrink film labels for its Double Pagoda Pure Sesame Oil products.



BEFORE: Original packaging for the Double Pagoda Pure Sesame Oil Products



AFTER: New packaging with net reduction in weight of materials used

CHINATOWN FOOD CORPORATION PTE LTD

Incorporated in 1992, Chinatown Food provides consumers with safe and quality traditional products.

REDUCTION IN MATERIAL USE FOR PLASTIC PACKAGING

In 2008, Chinatown Food reduced the thickness of plastic packaging for its glutinous rice balls and roti prata products from 70 microns to 60 microns while ensuring that the thinner packaging could withstand freezing temperatures without compromising product quality. Over the years, Chinatown gradually implemented this initiative to all Chinatown Food products, including sesame ball, pumpkin ball and mini mochi ball.



New plastic packaging with reduced thickness

CITY DEVELOPMENTS LIMITED (CITY SQUARE MALL)

Owned and managed by City Developments Limited (CDL), City Square Mall's mission is to create a fun, engaging and eco-friendly shopping experience for families and children.

PROVISION OF RECYCLING BINS AND RECYCLING FACILITIES FOR SHOPPERS AND TENANTS

In February 2011, CDL strategically placed 10 recycling bins within the Mall and its urban park to provide shoppers with convenient means to recycle waste. The mall also has a dedicated recycling point for tenants to recycle printer cartridges, cooking oil, batteries, plastics and metals.



Recycling point for tenants



Recycling bins within City Square Mall (left) and its urban park (right)

COCA-COLA SINGAPORE BEVERAGES PTE LTD

Coca-Cola Singapore Beverages Pte Ltd (CCSB) is a wholly owned and operated subsidiary of The Coca-Cola Company.

REDUCTION IN MATERIAL USE FOR PLASTIC BOTTLES

CCSB has reduced the amount of plastic used for its sparkling drinks gradually over the years; from the original 48g in 2008 to 41.7g in 2011 for its 1.5L polyethylene terephthalate (PET) bottle, and from 29.5g in 2008 to 22.7g in 2011 for its 500ml PET bottle.

This initiative was extended to still beverages in 2015 where the weight of its 500ml PET bottle was reduced from 23g to 22.28g while the weight of its 1.5L PET bottle was reduced from 44g to 42g.



Still beverage in 500ml and 1.5L bottles with lighter packaging



In 2009, changes were made in the production line so that PET bottles would have a shorter neck closure, resulting in an additional weight reduction between 1.25g and 1.32g for each bottle.

REDUCTION IN MATERIAL USE FOR ALUMINIUM CANS

In 2007, CCSB reviewed its aluminium can for its sparkling and still drinks, and reduced the can lid's weight from 3.7g to 3.4g, and the can's weight from 11.2g to 10.9g.

In 2014, CCSB converted the configuration of the cans for its sparkling and still beverages from 206/211 (end diameter/can diameter) to 202/211, reducing the can's weight from 14.4g to 13.3g.



Previous can with 206/211 configuration



New can with 202/211 configuration

REDUCTION IN TRANSPORT PACKAGING

CCSB invested in two new shrink-wrap machines and commissioned them in Q1 2011, so that flat boards can be used for packing canned beverages instead of 4-sided carton trays.

In 2015, a new "Sleek 202/204" design was introduced so that the amount of carton flat board used in deliveries could be reduced.



Old cans with the larger carton flatboard



New sleek cans with smaller carton flatboard

CCSB also reduced the thickness of its low density polyethylene (LDPE) shrink film used for wrapping bottled beverages, from 80 microns to 70 microns in 2015.

COOKING ART INDUSTRIES PTE LTD

Cooking Art Industries Pte Ltd (Cooking Art) was established in the 1980's and expanded its business to include the manufacture of confectionary and desserts in the mid-90s.

REDUCTION IN MATERIAL USE FOR PRODUCT PACKAGING

In March 2014, Cooking Art reduced the dimensions of the plastic packaging used to wrap its Nonya "kuehs" from 150mm x 212mm to 130mm x 155mm.



Original plastic packaging

REUSE OF PACKAGING

Cooking Art also reused empty flour bags to store food waste for disposal, instead of using new plastic trash bags.



New plastic packaging

CROWN BEVERAGE CANS SINGAPORE PTE LTD

CROWN is one of the leading metal packaging manufacturers in the world.

REDUCTION IN MATERIAL USE FOR ALUMINIUM CANS

In December 2010, CROWN reduced the thickness of the aluminum material used in the production of beverage cans.



Reduction in Material use for Aluminium cans

REDUCTION IN MATERIAL WASTAGE DURING MANUFACTURING PROCESS

CROWN tightened its process control in 2011 to ensure uniformity in the thickness of the aluminium can, which helped reduce aluminium wastage during manufacturing and enhanced the axial load performance (or strength) of the cans.

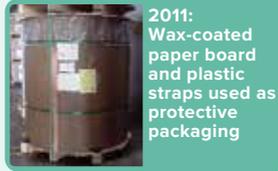
In 2011, CROWN worked with its supplier to replace the plastic boards used to protect raw aluminium protection during transportation, with recyclable stretch wrap film.

REDUCTION IN TRANSPORT PACKAGING

In 2011, CROWN worked with its supplier to replace the 2mm thick hard boards and 25mm steel straps used to protect and hold rolls of raw aluminium together, with 1mm thick wax-coated paperboard and 18mm plastic straps. In 2012, the weight of packaging material was further reduced by replacing the paperboard with stretch wrap film, and using fewer plastic straps.



BEFORE:
Hard board
and steel
straps used
as protective
packaging



2011:
Wax-coated
paper board
and plastic
straps used as
protective
packaging



2012: Shrink
wrap and
plastic straps
used as
protective
packaging

In 2013, CROWN worked with its German supplier to reduce the amount of solid pine wood packaging needed to transport its aluminium coils to Singapore. CROWN also switched from using wooden pallets and paper packaging to using only plastic pallets when shipping goods from its overseas sister plants.

DELL GLOBAL B.V. (SINGAPORE DESIGN CENTRE)

Dell Global B.V. (Dell) distributes and markets computer hardware in Singapore and is one of the world's leading technology solution providers.

USE OF RECYCLED CONTENT IN PACKAGING

In 2011, Dell replaced polyethylene and polystyrene foam packaging for some of its flat panel monitors with more environmentally friendly material such as corrugated cardboard with minimum 25% recycled content. In 2016, Dell increased the amount of recycled content in the corrugated board used for the inner packaging of its flat panel monitor and accessories to 100%.



**New corrugated
board packaging
made from 100%
recycled moulded
paper pulp**

REDUCTION IN MATERIAL USE FOR PRODUCT PACKAGING

In 2011, Dell also reduced the size of outer carton boxes and eliminated unnecessary packaging material within the carton boxes.

In February 2016, Dell changed the packaging for its wireless mouse from polyethylene terephthalate glycol-modified (PETG) blister package to a box made from corrugated board with a rigid PET hanging tab, reducing the dimensions of the packaging and the packaging weight from 60.3g to 30.3g.

In February 2017, Dell redesigned the packaging for its Docking Station D3100, changing the material from corrugated board to a mixture of chipboard, moulded pulp tray and cardboard, reducing the size of the outer box and the packaging weight from 342g to 320g.



**Old blister
packaging**



**New corrugated
board packaging**



**Original corrugated
board packaging**



**New packaging made of
chipboard, moulded
pulp tray and cardboard**

F&N FOODS PTE LTD

F&N Foods Pte Ltd (F&N Foods) is a leading food and beverage company in Singapore which manufactures a wide range of canned and pasteurised milk, fruit juices and soft drinks.

REDUCTION IN TRANSPORT PACKAGING

F&N Foods switched from full carton boxes to carton trays and plastic shrink wrap for their ultra-high temperature (UHT) processed milk in late July 2010.



Top: New half tray carton packaging

Bottom: Old full carton packaging

REDUCTION IN MATERIAL USE FOR DRINK CARTONS

In May 2014, F&N Foods eliminated the tamper-proof ring from the cap of F&N Foods' drink cartons, as the products already have a ring-pull under the cap to ensure that the product was sealed. This reduced weight of the cap from 1.6g to 1.5g.



Original F&N product cap



F&N product cap after ring removal

REDUCTION IN MATERIAL USE FOR PLASTIC BOTTLES

F&N Foods reduced the material use for plastic bottles through the following initiatives:

- Reduced weight of its Fruit Tree 2L plastic bottle from 100g to 85g in November 2013



Fruit Tree 2L plastic bottle with reduced packaging

- Reduced the weight of its Sunkist 2L plastic bottle from 122g to 85g in 2015



Old design



New design

- Reduced the weight of its 500ml PET bottles from 27.5g to 22.7g for the F&N and 100PLUS carbonated drinks in 2015
- Reduced the weight of the 1.5L PET bottle from 46g to 42.75g for the F&N and 100PLUS carbonated drinks in 2015



Old (left) and new (right) PET bottles for 100PLUS carbonated drinks

REDUCTION IN MATERIAL USE FOR ALUMINIUM CANS

The weight of the can lids was reduced from 3.8g to 2.8g in April 2015 for 100PLUS and F&N carbonated canned drinks. This initiative was extended to 100PLUS Edge and F&N non-carbonated canned drinks in June 2016.



Old (left) and new (right) aluminium cans for F&N non-carbonated drinks

GREENPAC (S) PTE LTD

Greenpac (S) Pte Ltd (Greenpac) is a knowledge-based company specialised in providing innovative and holistic packaging solutions using resource-efficient and environmentally friendly packaging.

REDUCTION IN TRANSPORT PACKAGING

In 2011, Greenpac re-engineered the crate for a medical instrument so that it is 21% lighter, collapsible for easy storage and crate return, and is sufficiently durable for reuse.



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

In 2013, Greenpac re-engineered the crate for transporting a surgical instrument and designed it to be reusable and returnable. Less wood was used than a conventional crate, causing it to be 18% lighter.



Re-engineered wooden crate which is lighter and reusable

In 2013, Greenpac reduced the dimensions of the crate for the VAVE 5600/4600 medical equipment and switched the material from a mixture of pine and plywood to 100% plywood, which increased its rigidity and durability. The new packaging is 33.2% lighter.



VAVE 5600/4600 medical instrument crate

In 2014, Greenpac replaced the wooden crate used for the transportation of the VAVE M220 F12 medical instrument with a combination of a cardboard carton box, protective polyethylene (PE) foam and a collapsible supporting structure made of plywood, resulting in a 35% decrease in weight.



Previous wooden packaging



New collapsible packaging

In July 2015, Greenpac redesigned the packaging used to house the Sirius Microscope by replacing the wooden packaging with a lighter polypropylene (PP) corrugated sheet, resulting in 60% reduction in weight.



Old wooden crate packaging



New PP corrugated sheet packaging

In August 2016, Greenpac redesigned the packaging of the Field Replacement Unit (FRU) by changing it from a PP moulded case to a paper carton box with polyurethane foam, which resulted in 70% reduction in packaging weight.



Old and heavier PP moulded case packaging



New and lighter packaging with paper carton box and polyurethane foam

Greenpac worked with their client in July 2016 to re-engineer the packaging used for the spare parts of the 1000SR Vacuum Accumulator so that only one type of box is used to pack the spare parts, rather than the two different types of boxes originally required.



Foam inserts in new packaging could be adjusted to cater to different spare parts by using the inner ring

Greenpac changed the packaging used to store computer equipment in January 2017 from mixed wood to regular slotted carton box made of recycled material, reducing packaging weight from 30kg to 1.5kg.



Old packaging made of mixed wood



New regular slotted carton box packaging made of recycled material

HA LI FA PTE LTD

Ha Li Fa Pte Ltd offers a wide range of products including fish balls, fish cakes, chicken sausages, ham and meat balls.

ELIMINATION OF DISPOSABLE PACKAGING DURING MANUFACTURING PROCESS

In August 2009, Ha Li Fa replaced the plastic bags – used for holding products when weighing them before packing - with plastic baskets which can be reused.



Products in reusable plastic baskets

Ha Li Fa replaced the Styrofoam boxes used during the product manufacturing process with reusable plastic trays.



Reusable plastic trays

Ha Li Fa installed an in-house ice cubes maker in February 2017, which eliminated the need to purchase ice cubes packed in high-density polyethylene (HDPE) bags from a supplier.



Ice cubes delivered in HDPE bags by supplier

In-house ice cubes maker

REDUCTION IN MATERIAL USE FOR PRODUCT PACKAGING

Ha Li Fa reduced the thickness of the plastic bags used for packing its products from 30 microns to 20 microns in June 2011. In 2012, Ha Li Fa used thinner and smaller plastic bags to contain batches of 10kg minced fish product.

In November 2012, Ha Li Fa installed a new packaging machine which uses less plastic for packing its food products.



New packaging machine

In 2015, Ha Li Fa eliminated the use of sticker labels for its client's branded products and printed the product information directly on the packaging films.



LEFT: Previous packaging with sticker label

RIGHT: Product information directly printed on new packaging

REDUCTION IN TRANSPORT PACKAGING

Since 2011, Ha Li Fa has been working with its suppliers to replace the wooden pallets used for transporting food with returnable and more durable plastic pallets.



Old wooden pallets



New plastic pallets

In 2015, Ha Li Fa worked with its suppliers to replace the carton boxes and kraft paper used for transporting products to its factory with returnable plastic trays.

In 2012, the height of the carton boxes used to contain ham products was reduced from 165mm to 115mm.



Height of carton box reduced

Since September 2013, Ha Li Fa stopped using pallets and shrink wrap for shipping products overseas.



BEFORE:
Use of pallets and shrink wrap to ship products overseas



AFTER:
Eliminated the use of pallets and shrink wrap

In 2014, Ha Li Fa replaced stainless steel tanks with recycled plastic pails to store products. The plastic pails could also be used to transport products to customers, which eliminates the need for outer plastic carrier bags.

In August 2015, Ha Li Fa worked with their tenant customers to eliminate the use of secondary carrier plastic bags when delivering products to them.



Product delivered with secondary carrier plastic bags



Elimination of the use of secondary carrier plastic bags

REDUCTION AND REUSE OF PACKAGING WASTE

In 2013, Ha Li Fa initiated tighter control on the use of cleaning agent so that the usage was reduced from 20 drums to 6 drums per month, thereby decreasing the amount of packaging waste generated. Ha Li Fa also cooperated with its supplier so that the 220L plastic drums are reused when fresh batches of cleaning agent are supplied.

Ha Li Fa started returning the outer carton boxes for meat balls back to its suppliers for reuse in 2015.

RECYCLING OF PACKAGING WASTE

Ha Li Fa started recycling 20L palm oil metal tins in February 2013, and unwanted carton boxes in 2014. In 2017, Ha Li Fa also sent their packaging waste arising from thermo-forming vacuum packaging processes for recycling.



Waste from thermo-forming vacuum packaging processes sent for recycling

HEWLETT PACKARD ENTERPRISE

Hewlett Packard Enterprise (HPE) operates a manufacturing facility in Singapore for IT products including servers, as well as storage and networking devices.

REDUCTION IN PRODUCT PACKAGING AND TRANSPORT PACKAGING

In 2014, HPE reduced the amount of packaging for its HP 3PAR MBOD Drive for delivery to clients, by changing its packaging method and redesigning the packaging components. With a smaller packaging dimension, the amount of wooden pallets used in its transportation could be halved.



Old packaging method
(power units and chassis
packed separately)



New packaging
method (power units and chassis
packed together)

In 2015, HPE reduced the net amount of packaging for the 50-pack HP 3PAR Drive Magazines (DMAGs) and reduced dimensions of the wooden pallet used. The 100% virgin foam was also replaced with 65% post-consumer recycled material.



Old
packaging
weighing
26.4kg



New
packaging
weighing
24.3kg

REDUCTION IN PRODUCT PACKAGING

In 2016, HPE reduced the amount of packaging for its DVD Drive by changing the protective packaging – from low density polyethylene (LDPE) fabricated foam to lighter high density polyethylene (HDPE) thermoformed cushion – and reducing the size of the carton box.



LEFT: Old packaging with
bigger box and LDPE foam
cushion (total weight: 338g)

RIGHT: New packaging with
smaller box and HDPE
thermoformed cushion
(total weight: 282g)

In 2016, HPE reduced the amount of packaging for its Blade Server by replacing the LDPE fabricated foam with lighter air-filled cushion made out of LDPE and nylon film, and reducing the size of corrugated box. A similar initiative using air-filled cushion was implemented for HPE's Synergy 480 Gen9 server in 2017.



Old packaging for Blade Server
with LDPE foam cushion
(total weight: 1,665g)



New packaging for Blade Server
with smaller box and air-filled
cushion (total weight: 1,271g)

The amount of packaging for HPE's ProLiant DL360 Server was also reduced in 2016 by replacing the LDPE fabricated foam protective packaging with a lighter Arcel moulded cushion made of 30% polyethylene (PE) and 70% polystyrene (PS), reducing overall packaging weight from 851g to 549g.



Old packaging
with larger box
and three
air-filled cushions

HPE also reduced the amount of packaging for its BL8x0c memory kit by using a smaller corrugated clamshell box and reducing the number of air-filled cushions without compromising the protection for the product.



New packaging with
smaller box and one
air cushion

CHANGE TO REUSABLE PACKAGING

In 2017, HPE switched from single-use containers made from electrolytic tinplate to reusable aluminium containers for the storage of its desiccant packs.

RECYCLING OF PACKAGING WASTE

HPE started collecting polyethylene aluminium packaging waste for recycling in January 2015.



Recycling of
polyethylene-
aluminium
packaging
waste

HOCK LIAN HUAT FOODSTUFF INDUSTRY PTE LTD

Established since 1928, Hock Lian Huat Foodstuff Industry (HLH) is a Singapore heritage brand and a leading manufacturer and supplier of "Wu Xiang" (five spiced meat roll) and "Xia Bing" (prawn crackers).

REDUCTION IN PRODUCT PACKAGING

Since January 2009, HLH had redesigned its product packaging material to just the right size and thickness, without compromising on the quality of the food supply.

In August 2009, HLH had replaced its product packaging from double sided plastic bags to stronger single sheet bags to contain products.

In 2011, HLH had replaced conventional paper bags of 20 microns thickness with environmentally friendly bags that are 18 microns in thickness and contain recycled plastic material.



Before After

Switch to smaller plastic bags



Thinner, environmentally friendly bags

CHANGE TO REUSABLE PACKAGING

In 2012, HLH had replaced the use of plastic carrier bags with washable and reusable plastic containers for delivery of products to its customers.



Replacement of plastic carrier bags (above) with reusable plastic containers (bottom)

IKEA SOUTHEAST ASIA

Since opening its first store in Singapore in 1978, IKEA has been offering a wide range of well-designed home furnishings and functional living solutions at affordable prices.

REDUCTION IN PLASTIC BAG USE

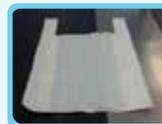
In 2011, IKEA stopped providing plastic bags to customers. Instead, bio-degradable plastic bags were made available for purchase and their proceeds were donated to World Wildlife Fund (Singapore).



Say "NO" to plastic bags

CHANGE TO REUSABLE PACKAGING

In 2013, IKEA ceased the sale of disposable plastic bags and encouraged customers to use reusable shopping bags for their purchases.



Elimination of disposable plastic bags

USE OF RECYCLED PACKAGING

IKEA has been promoting newspaper recycling under Småles children's loyalty programme since 2009. Newspaper, instead of brown paper, is provided so that customers can wrap their purchases.

Since March 2016, IKEA stopped providing disposable containers and used reusable JAMKA containers to pack takeaway food.



Reusable JAMKA container for takeaway food

KENTUCKY FRIED CHICKEN MANAGEMENT PTE LTD

Kentucky Fried Chicken Management Pte Ltd (KFC) opened its first restaurant in Somerset Road in 1977 and has developed into a household name over the years.

REDUCTION IN MATERIAL USE FOR PRODUCT PACKAGING

In 2008, KFC reduced the thickness of the small plastic bags used for takeaway from 18 microns to 15 microns.

KFC reduced the size of home delivery Thrift box from 350mm x 230mm x 70mm to 260mm x 233mm x 73mm in 2008.



Size of home delivery Thrift box reduced

KFC reduced the thickness of paperboard used for turnover sleeve for dessert pies from 240gsm to 210gsm in July 2008.



Packaging with reduced thickness

In 2009, KFC reduced the dimension of Dinner box from 255mm x 170mm x 71mm to 205mm x 170mm x 71mm and reduced its thickness from 240gsm to 210gsm.



Reduction in dimension and thickness for Dinner Box

KFC reduced thickness of the Zinger boxes from 240gsm to 210gsm in July 2008. The foodboard box was then replaced with paper wrapper in May 2010. This initiative lasted until July 2010 but was introduced again in January 2011.



"Zinger Box" (left) replaced with paper wrapper (right)

Thickness of half clamshell foodboard box for dine-in customers was reduced from 250gsm to 210gsm in November 2009.



Clamshell foodboard box

In 2011, the height of Ultimate Filler Box packaging was reduced by 1cm, enabling the set meal items to be packed in a more compact manner and reducing foodboard material used.



Reduction in height of Ultimate Filler Box

KIM GUAN GUAN COFFEE TRADING PTE LTD

Established in 1988, Kim Guan Guan Coffee Trading (KGG) is an integrated company that imports, roasts, packs and supplies traditional grounded coffee and tea powder to businesses in Singapore.

REDUCTION IN MATERIAL USE FOR PRODUCT PACKAGING

In June 2014, KGG reduced the thickness of the plastic packaging used for the 200g service pack of coffee powder from 100 microns to 73 microns.



LEFT: Previous service pack
RIGHT: New service pack which is thinner and lighter

RECYCLING OF PACKAGING WASTE

In March 2015, KGG began collecting polyethylene-aluminium and polypropylene packaging waste from the production process for recycling.

LHT HOLDINGS LTD

Established in 1977, LHT Holdings Ltd is one of the largest manufacturing companies of high quality wooden pallets, boxes and crates in Singapore.

RECYCLING OF PACKAGING WASTE

LHT Holdings recycles wooden packaging waste and turns them into pallets, doors and flooring products.



Innovative Process Product Conversion (IPPC) pallets made of 70% recycled wood (left) and 100% recycled wood (right)

MARINA BAY SANDS PTE LTD

Marina Bay Sands is a leading business, leisure and entertainment destination in Asia which features a large expo and convention centre, hotel, shopping mall, restaurants and outdoor event plaza.

REDUCTION IN TRANSPORT PACKAGING

In 2010, Marina Bay Sands introduced a plastic basket and pallet exchange pilot programme in which two suppliers were provided with reusable plastic baskets and pallets for deliveries. This programme was expanded to 21 suppliers by 2016.



Goods delivered in reusable plastic baskets and pallets, instead of carton and Styrofoam boxes.

MCDONALD'S RESTAURANTS PTE LTD

McDonald's opened its first restaurant in Singapore in 1979 and has more than 130 restaurants island-wide today, serving more than 6 million customers each month.

REDUCTION IN PACKAGING WASTE

In 2008, McDonald's introduced the self-service Condiment Counters with "sauce pumps" to reduce the distribution of chilli sauce and ketchup sachets.



Self-service Condiment Counters

In 2010, the weight of the McFlurry stirring spoon was reduced from 6g to 4g via a length reduction.



Smaller McFlurry spoon on the left

MICROWAVE PACKAGING (SINGAPORE) PTE LTD

Microwave Packaging (Singapore) Pte Ltd designs and manufactures paperboard F&B containers.

REDUCTION IN PACKAGING WASTE

The thickness of paper boxes for takeaway food was reduced from 358gsm to 325gsm. Microwave Packaging also changed the way the box was cut so that 8% less material is required to construct a box of the same size.



Reducing thickness of delivery boxes

MING FAI GROUP

Ming Fai Group is an international enterprise which supplies quality products to customers in hotel, airline and personal care industries.

REDUCTION IN MATERIAL USE FOR PRODUCT PACKAGING

In 2015, Ming Fai Group started printing product descriptions directly on the packaging, instead of using plastic sticker labels, for the dental kits and shaving sets supplied to one of its clients.



TOP: Previous packaging with sticker label

BOTTOM: New packaging with description printed directly on packaging

USE OF RECYCLED CONTENT IN PACKAGING

Instead of using paper boxes made of virgin material, Ming Fai Group switched to using paper boxes with 70% recycled content to pack hotel amenities for one of its clients in 2015.

NESPRESSO SINGAPORE

Nespresso, an autonomous business of the Nestlé Group, was founded in 1986 with the dream of enabling anyone to create the perfect cup of coffee - just like a skilled barista.

RECYCLING OF PACKAGING WASTE

Sustainability is not new to Nespresso. Having invested in its own collection network for used Nespresso capsules since 2012, in 2016, Nespresso expanded its network of recycling points with an additional recycling point at its new boutique at Raffles City. In 2017, Nespresso also made its Recycling@Home programme (where the delivery man would pick up used coffee capsules from households when delivering new orders) more accessible to consumers by lowering the threshold for free delivery.

NESTLÉ SINGAPORE (PTE) LTD

As a leading nutrition, health and wellness company, Nestlé enhances lives by offering tastier and healthier food and beverage choices at all stages of life, helping consumers care for themselves and their families.

REDUCTION IN MATERIAL USE FOR TIN CANS

In 2007, Nestlé reduced the thickness of its 1.5kg-tin-cans from 0.25mm to 0.22mm by changing its design from a 6-bead to a 9-bead tin to ensure that compression strength would not be adversely affected. This initiative was extended to its 1.25kg and 1.65kg MILO® tin cans in 2009.



BEFORE:
0.25mm
thickness
with 6 beads



AFTER:
0.22mm
thickness
with 9 beads

REDUCTION IN MATERIAL USE FOR PRODUCT PACKAGING

In 2013, Nestlé changed the packaging for its 400g MILO® from tin can to pouch, resulting in a 90% reduction in packaging weight. In 2015, the thickness of the pouch was reduced from 104 microns to 84 microns.



Change in packaging for MILO® 400g product

REDUCTION IN MATERIAL USE FOR SOFT PACKS

In 2010, Nestlé reduced the height of its MILO® soft pack from 350mm to 315mm. The height was further reduced to 310mm in 2011.

Nestlé also reduced the height of its MILO® Hot Mix vending pouch from 320mm to 315mm in 2011, and from 315mm to 310mm in 2015.

In 2014, the thickness of the MILO® 900g pouch was reduced from 104 microns to 84 microns. The thickness of the NESCAFÉ® Original 3-in-1 Coffee products was also reduced from 82 microns to 65 microns.



Reduced height of MILO® Hot Mix Vending pouch in 2015

REDUCTION IN MATERIAL USE FOR PRODUCT PACKAGING

In 2015, Nestlé switched from wrapping paper labels on tin cans to printing directly on the tin cans for its MILO® 1.8kg, MILO® 1.4kg and MILO® 1.25kg products.



Old (left) and new (right) MILO® 1.25kg tin cans

REDUCTION IN TRANSPORT PACKAGING

In 2009, Nestlé reduced the dimensions of corrugated carton boxes used to pack local MILO® 900g-soft-packs and 1kg-soft-packs, from 480mm x 370mm x 190mm to 470mm x 350mm x 190mm. In 2010, Nestlé reduced the height of cartons used to contain soya sauce products from 360mm to 340mm. Nestlé also reduced the dimensions of carton box for the NESCAFÉ® 3-in-1 promotion pack in 2015 and for the NESCAFÉ® 3-in-1 INTENSE pack in 2016.



Size of corrugated carton box for the NESCAFÉ® 3-in-1 promotion pack (right) was reduced so that it was the same size as that of the NESCAFÉ® 3-in-1 Originals pack (left)

In 2010, Nestlé eliminated the use of paper cartons to pack its MILO® 900g and 3-in-1 soft pre-packed, which were prepacked with laminate rolls.



Use of cartons eliminated

Since 2012, Nestlé worked with its packaging supplier to supply laminate reels without outer carton boxes.

In 2014, Nestlé eliminated the corrugated board filament in the carton boxes used to pack its NESCAFÉ® Original 3-in-1 Coffee products without affecting the packaging or quality of the products.



NESCAFÉ Original 3-in-1 Coffee packed in carton boxes with (left) and without (right) corrugated fitment

REDUCTION IN MATERIAL WASTAGE DURING MANUFACTURING PROCESS

By modifying the soft pack production line and improving operations efficiency in 2009, Nestlé was able to reduce laminate losses during production of MILO® soft packs from 6% to between 1% and 2%.

In 2011, Nestlé increased the length of laminate packaging per reel for its MILO® 3-in-1 sachets so that the frequency of changeover is reduced, cutting down laminate loss. This initiative was extended to MILO® Hi-Calcium and MILO® Easy Cool 3-in-1 sachets in 2012, and to MILO® 400g and 900g soft packs in 2017.



Left: Old reel with 1200m of laminate
Right: New reel with 1600m of laminate

REUSE OF PACKAGING

Since 2010, Nestlé reuses cocoa powder bulk bag for soya sauce by product repackaging.

REDUCTION IN PACKAGING WASTE

In 2016, Nestlé switched from small capacity polypropylene (PP) woven bag to large capacity Flexible Intermediate Bulk Container (FIBC) for storage of the tapioca starch used to produce malt extract, resulting in an overall reduction in packaging usage.

The FIBCs were also sent for recycling since August 2016.



50kg capacity PP woven bags 850kg capacity FIBC

OVIYAM INTERNATIONAL PTE LTD

Oviyam International Pte Ltd is a fast moving consumer goods (FMCG) distribution company that was established in Singapore in 2006.

REDUCTION IN MATERIAL USE FOR PRODUCT PACKAGING

In 2015, Oviyam worked with its cooking supplier to switch to a lighter plastic bottle for its 2-litre refined sunflower oil.



Old and heavier bottle



New and lighter bottle

PEOPLE BEE HOON FACTORY PTE LTD

Established in 1943 and incorporated in 1983, People Bee Hoon Factory Pte Ltd is a food manufacturing company focused on rice vermicelli production.

REDUCTION IN PACKAGING WASTE

In 2010, People Bee Hoon Factory reduced the thickness of the plastic packaging for their food service pack (bulk pack). They also reduced the amount of packaging discarded due to damage during the packing process by slightly increasing the thickness of the packaging of consumer packs. Paper core usage was also reduced by increasing per roll of plastic length from 1000m to 1200m.



Reduced packaging

PRIMA FOOD PTE LTD

Prima Food Pte Ltd's main business areas are food manufacturing and F&B franchising, and they manage Prima Taste and PrimaDéli.

REDUCTION IN PACKAGING WASTE

In 2014, Prima Food reduced the amount of packaging used for its Prima Meal Kit by reducing the dimensions of the outer pack, inner pouch and carton boxes used for packing Meal Sauce Kits, without changing the content volume.



Reduction in height of outer pack from 210mm(left) to 188mm(right)

PS FOOD & BEVERAGE (S) PTE LTD

PS Food & Beverage (S) Pte Ltd is focused on developing new product innovations in the beverage industry that could improve or enhance the customer's taste experience and sustainable lifestyle.

REDUCTION IN PACKAGING WASTE

In July 2016, PS Food & Beverage reduced the weight and dimensions of its Origina Blackcurrant and Pomegranate Juices. The smaller packaging of the juices enabled more efficient packing and reduced number of carton boxes used for delivery.



Old Origina juice packaging



New Origina juice packaging with same volume

SEAGATE TECHNOLOGY INTERNATIONAL

Seagate provides data storage solutions and develops products that enable people and businesses around the world to create, share and preserve their most critical memories and business data.

REDUCTION IN PACKAGING WASTE

In 2013, Seagate installed a protective padding layer on the platforms, off the conveyors, to reduce defective packaging.



Protective layer of padding along the platforms, off the conveyor systems

RECYCLING OF PACKAGING WASTE

In July 2014, Seagate began collecting polyethylene-aluminium packaging material for recycling.



Collection of polyethylene-aluminium packaging waste for recycling

REDUCTION IN TRANSPORT PACKAGING

In December 2013, Seagate increased the reuse rate of its shipping cassettes from 8 times to 11 times after conducting feasibility studies.

Seagate changed its purchasing strategy in 2014, to focus on the acquisition of more robust and durable gaylords or bulk boxes to reduce its replacement rate.

In 2015, gaylords with 33% higher impact strength were introduced after performance evaluation of different types gaylords, further lowering the replacement rate.



Protective layer of padding along the platforms, off the conveyor systems



Reduced packaging

SIN HWA DEE FOODSTUFF INDUSTRIES PTE LTD

Sin Hwa Dee Foodstuff Industries Pte Ltd has been an established and leading producer of high-quality sauces and mixes since the 1970s.

REDUCTION IN MATERIAL USE FOR PRODUCT PACKAGING

In April 2015, Sin Hwa Dee replaced the heat shrink cap seal with a safety button on the metal lug cap, thereby retaining its tamper-proof property while reducing its packaging material.



Old packaging with heat shrink cap seal



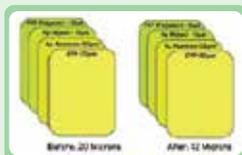
New packaging without heat shrink cap seal

SINGAPORE FOOD INDUSTRIES LTD

Singapore Food Industries Limited (SFI) has operations in almost every sector of the food industry, from raw material supply, food manufacturing and processing to food distribution and food catering.

REDUCTION IN MATERIAL USE FOR PRODUCT PACKAGING

In 2009, SFI reduced the overall thickness of the aluminium packaging for its Meals-Ready-to-Eat (MRE) pouches, which led to a 5% drop in weight.



REDUCTION IN TRANSPORT PACKAGING

In 2009, pallets made with more durable plastic were introduced to lower the replacement rate of plastic pallets.

STARBUCKS COFFEE SINGAPORE PTE LTD

Starbucks Coffee Singapore is a wholly owned subsidiary of Starbucks Coffee Corporation and the first Starbucks store in Singapore was opened on 14 December 1996 at Liat Towers.

REDUCTION IN PACKAGING WASTE

In 2010, Starbucks offered a fifty-cent rebate to customers who bring their own Starbucks tumblers for their beverages. On 15 April 2010, complimentary beverages were offered to customers who brought their own Starbucks tumblers.



Starbucks' tumbler

In 2012, Starbucks replaced disposable plastic cups with reusable cups for dine-in orders of cold drinks.



BEFORE: Disposable plastic cup for all cold drinks

AFTER: Reusable cold cup for dine-in orders

STARLITE PRINTERS (FAR EAST) PTE LTD

Starlite Printers prints and manufactures high quality boxes, labels, manuals and instruction booklets for a wide range of products.

REDUCTION IN PACKAGING WASTE

In 2010, Starlite Printers established an internal ink production team to reduce wastage of coloured inks and tins.

Starlite Printers also reduced plastic bottle waste – caused by reduced chemical usage – after switching from conventional thermal plates to Trillian thermal plates for printing in March 2013.

REUSE OF TRANSPORT PACKAGING

In 2013, Starlite Printers purchased used wooden pallets from one of its customers for reuse in its supply chain.



Purchase used wooden pellets for reuse

In 2014, Starlite Printers implemented a system to return for reuse, the carton boxes which are used to transfer goods from its subsidiary in Malaysia to its factory here in Singapore, thereby saving packaging resources and closing the loop on packaging waste.



Carton boxes flattened for return to Malaysian subsidiary

REDUCTION IN TRANSPORT PACKAGING

In 2011, Starlite Printers asked suppliers to eliminate kraft paper packaging and instead, use plastic shrink wrap to hold piles of paper together.



Before
Kraft paper packaging used to wrap 100 sheets of paper per pack

After
Removal of kraft paper packaging

In 2012, double-walled carton boxes were replaced with single-walled carton boxes for storing printed products.



LEFT: double-walled carton box

RIGHT: Single-walled carton box

ST AEROSPACE ENGINEERING PTE LTD

ST Aerospace Engineering specialises in depot level maintenance, aircraft upgrading, refurbishment, major structural repair and life extension programmes for military and general aviation aircrafts.

REDUCTION IN PACKAGING WASTE

In 2013, ST Aerospace Engineering replaced its chemical foam packaging method for packing certain aircraft components, with a packaging method utilizing used / recycled packaging materials.

ST Aerospace Engineering also acquired reusable containers in 2013 to store chemicals, thereby eliminating the need to dispose of single-use plastic containers after each use. Tins for containing chemicals used for aircraft maintenance were also recycled.



BEFORE: Conventional chemical foam packaging for aircraft components



AFTER: Using recycled materials for packing aircraft components

SUBWAY SINGAPORE DEVELOPMENT PTE LTD

Subway® is an American quick service restaurant chain which allows guests in 112 countries have easy access to a fresh line-up of vegetables for their made-to-order sandwiches, salads and wraps at more than 44,600 franchised locations.

REDUCTION IN PACKAGING WASTE

In 2008, the thickness of the paper wrap for SUBWAY® sandwiches was reduced from 33gsm to 30gsm. The size of the paper wrap was also reduced in 2012.

Since 2008, cookies were packed into brown kraft paper, omitting the use of an outer carton box.



Reducing the dimensions of SUBWAY®'s paper wrap

In 2013, Subway Singapore Development replaced the use of disposable paper trays with reusable plastic scoops to prepare SUBWAY® sandwiches containing chicken and beef.



Replace disposable trays (left) with reusable plastic scoops (right)

In 2014, Subway Singapore Development introduced a new single-cup drink carrier for takeaway drinks ordered by its customers, resulting in a reduction of plastic packaging used.



Old two-cups carrier bag

New single-cup carrier bag

In 2015, the length of the plastic bags for SUBWAY® 6-inch sandwiches was reduced from 18.5 inches to 11 inches.



LEFT: Previous longer plastic bag for all sandwiches

RIGHT: New, shorter plastic bag for 6-inch sandwiches

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.

REDUCTION IN MATERIAL USE FOR PRODUCT PACKAGING

In 2009, Sunfresh switched from HDPE to PET for its 1L and 250ml bottles. Fruit juices previously packed in paper drink cartons with plastic sprout caps were also switched to one without sprout caps.



In 2012, Sunfresh reduced the size of the labels for its bottled orange juice products, from 78mm x 185mm to 100mm x 40mm.



In December 2010, Sunfresh reduced the weight of the plastic cups used by airlines from 4.7g to 4.4g.



Plastic cups

In 2017, Sunfresh also reduced the weight of plastic cup used for pre-cupped juices supplied to their hotel and hospital clients by switching from PET to PP.



Cups made of polyethylene terephthalate (PET)

Cups made of polypropylene (PP)

REDUCTION IN TRANSPORT PACKAGING

In 2008, Sunfresh decreased the proportion of corrugated cardboard boxes from 20% to 3% by using returnable plastic trays.

Sunfresh also replaced double-walled carton boxes with single-walled carton boxes for exporting products in 2008.



Returnable plastic trays

In 2010, Sunfresh replaced the carton boxes used to store oranges with large carton bins.



Large carton bins (right) replaced carton boxes (left)

Sunfresh introduced plastic pallets, which are more durable, to replace wooden pallets in 2010.



More durable plastic pallets

Since 2010, Sunfresh has been reusing used paper cartons as supporting base for transportation of its goods, instead of using new cardboard paper.



Reuse of paper cartons for logistical purposes

REDUCTION IN MATERIAL USE FOR TRANSPORT PACKAGING

In February 2013, Sunfresh eliminated the use of secondary plastic liners for the packaging of disposable cups for delivery to the airlines.



Use of secondary plastic liners

Secondary plastic liners removed

In September 2015, Sunfresh eliminated the use of primary plastic liners for packing the aluminium cups to be delivered to its factory for production.



Use of secondary plastic liners

Primary plastic liners removed

In June 2014, Sunfresh installed a new fruit juice extractor which produces an additional 5% yield, resulting in 9% less oranges needed to produce the same yield and 27 fewer cardboard bulk bins required for the transportation and storage of oranges.



New fruit juice extractor

Bulk bins for oranges

REDUCTION IN MATERIAL USE FOR PRODUCT PACKAGING

In 2014, Sunfresh replaced its old juice filling machine with a new one that has lower incidences of sealing defects, thereby reducing the percentage of juice cartons that would be rejected and disposed of, from 1.2% to 0.4%.



Old filling machines with 1.2% rejection rate liners

New filling machines with 0.4% rejection rate

REUSE OF PACKAGING

Sunfresh started reusing the plastic used for storing fruit juice concentrates as waste bags for disposing orange peels and other wastes in 2010.



Reuse of plastic bags for production waste

TAI HUA FOOD INDUSTRIES PTE LTD

Tai Hua Food Industries is one of the market leaders in soy sauce production in Singapore and they distribute a wide range of products, including soy sauces, marinades and canned foods.

REDUCTION IN PACKAGING WASTE

Since 2012, plastic bottles from quality checks are cleaned for reuse in the laboratory, rather than being thrown away. Plastic bottles that do not conform the company's quality requirements are sent back to the suppliers.



A typical PET bottle used for Tai Hua's soy sauce products

TETRA PAK JURONG PTE LTD

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.

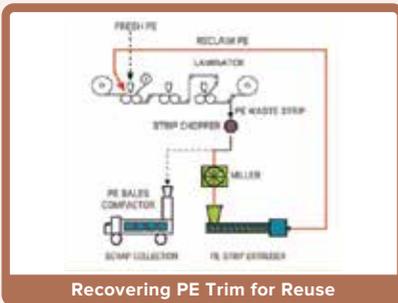
REDUCTION IN MATERIAL WASTAGE DURING MANUFACTURING PROCESS

Since July 2007, Tetra Pak switched to a flying setup for changing the width of polyethylene (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.

In another initiative, Tetra Pak reduced the width of the PE strip (plastic coating that is pulled over the edge of paperboard layer) of the beverage carton from 13mm to 10mm, while it is being laminated. This resulted in a 23% reduction in PE usage.

Tetra Pak invested in new equipment to enable PE trim to be recovered from one of its laminating machines, and be reused for packaging.

In 2010, Tetra Pak implemented processes to manually recover PE trim from its second laminating machine so that it can be reused in the packaging production process. In 2013, this initiative was improved upon by installing equipment to automate the PE strip recovery.



In 2011, Tetra Pak simplified and shortened its laminating machine's start-up process to reduce the amount of PE drooled away and wasted. The control of laminating machines was improved upon to obtain better control over the amount of PE coating used, thereby reducing PE wastage.

In 2012, Tetra Pak made adjustments to the preparation of paperboard packaging materials – used for the printing process – to reduce wastage of paper. Tetra Pak also changed the standard procedure for preparing paperboard packaging materials for the lamination process, thereby eliminating unnecessary wastage of paper.



Before: 5.3m of each roll of paperboard would be sent for recycling

After: Only 0.3m of each roll of paperboard is removed in the printing process

In 2013, Tetra Pak implemented a standardised procedure to remove dust particles – which causes production defects – from the chilled roller during temporary breaks in the lamination process, so as to reduce packaging material waste.



Standardised procedure to clean the chilled roller during temporary breaks

Since August 2013, Tetra Pak has been reusing paperboards with printing defects, in place of fresh paperboard, to set up printers and laminators. They are reused twice for printer set-up and 3 times for laminator set-up, before becoming protective layers for WIP rolls, and protective sheets for finished goods.

REDUCTION IN TRANSPORT PACKAGING

In 2010, Tetra Pak replaced wooden pallets with plastic pallets that are more durable and can be collected from customers.

REDUCTION IN MATERIAL WASTAGE DURING MANUFACTURING PROCESS

In 2016, Tetra Pak adopted the optimised co-printing method which only requires a single setup to produce the packaging for multiple designs, thereby reducing the amount of setup paper waste generated.



Co-printing method

ELIMINATION OF PLASTIC BAGS

In 2015, Tetra Pak switched from collecting loose confetti (the circular cut-outs left behind after punching a “straw hole” through the paper layer during beverage carton production) in plastic bags to compressing it into briquettes to be sent for recycling, thereby eliminating the need for plastic bags.



Loose confetti is collected using plastic bags

Confetti is compressed into briquettes, eliminating the need for plastic bags

THONG SIEK FOOD INDUSTRY PTE LTD

Thong Siek Food Industry is the largest surimi-based processed seafood manufacturer in Singapore, producing more than 60 varieties of fish-based products.

REDUCTION IN PLASTIC BAG PACKAGING

In 2009, Thong Siek reduced the thickness of the plastic bags used to pack their fresh fish balls from 0.06mm to 0.04mm.

In 2010, they used smaller plastic carrier bags for the distribution of seafood products to retail outlets. Similarly, in 2011, they replaced the HDPE plastic bags for storing fish paste with smaller ones.



Original plastic carrier bags (left) and new smaller carrier bags (right)

In 2015, Thong Siek reduced the thickness of 2 different packaging for packing ingredients from 0.04mm to 0.02mm.

REDUCTION IN MATERIAL USE FOR PRODUCT PACKAGING

In 2013, Thong Siek reduced the size of the label sticker on the packaging of its Saito fish paste product from 123.5cm² to 80.8cm². The additional ‘use by’ sticker was also eliminated by printing the information directly onto the label.



Original label sticker
Surface area: 123cm²

New label sticker
Surface area: 80.8cm²

In 2015, the size of the sticker labels used on all carton boxes was reduced from 101mm x 165mm to 87mm x 70mm.

In 2015, Thong Siek reduced the size of the plastic packaging for its Fuzhou fish balls, and the size of the packaging for its DoDo Premium products.



LEFT: Previous packaging for DoDo Premium products (245mm x 183mm)
RIGHT: New packaging for DoDo Premium products (206mm x 145mm)



LEFT: Previous packaging for Fuzhou fish balls (208mm x 180mm)
RIGHT: New packaging for Fuzhou fish balls (208mm x 147mm)

REDUCTION IN TRANSPORT PACKAGING

In 2011, Thong Siek reduced the height of the carton used for delivering fried products by 25mm.

TOSHIBA DATA DYNAMICS PTE LTD

Toshiba Data Dynamics is the official distributor of Toshiba communication and IT products manufactured by Toshiba Corporation in Singapore.

RECYCLING

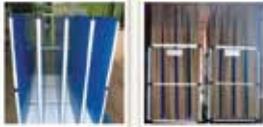
In 2011, Toshiba Data Dynamics teamed up with a local recycler to implement Toner cartridges Take-back programme for its corporate customers.



TOSHIBA TEC SINGAPORE PTE LTD

Toshiba TEC provides a wide range of printers, point of sale terminals and information processing systems well-received by the retail industry, financial industry and supply chains.

REDUCTION IN TRANSPORT PACKAGING



Use of fabricated trolley to transport carton packages

Since 2010, Toshiba TEC worked with one of its carton box suppliers to design, fabricate a trolley for carton box delivery, instead of using wooden pallet.



Wooden pallets (LEFT) replaced with plastic pallets (RIGHT)

In 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.



Reusable plastic container

In October 2014, Toshiba TEC replaced their carton boxes with reusable plastic containers for the delivery of equipment parts by its suppliers.



Goods delivered using wooden pallets & secured with plastic stretch film



Goods delivered in reusable metal cages

Since May 2015, Toshiba TEC has been providing its suppliers with reusable metal cages to deliver electronic components, moulded plastic parts and metal stamping parts, thus obviating the need for wooden pallets and plastic stretch film.



Goods delivered in wooden pallets and carton boxes



Goods delivered in reusable trolleys

Since December 2016, Toshiba TEC has been providing its suppliers with reusable trolleys so that the components of their dot matrix printers can be unloaded without wooden pallets.

UNIVERSAL INTEGRATED CORPORATION CONSUMER PRODUCTS PTE LTD

Universal Integrated Corporation Consumer Products (UICCP) manufactures a range of detergents in Singapore and Malaysia.

REDUCTION IN PRODUCT PACKAGING

In 2010, UICCP reduced the thickness of all polybags used for storing detergent powder from 120 microns, 85 microns and 65 microns to 90 microns, 75 microns and 55 microns respectively.

The sizes of the cartons for their detergent powders, 'Spin' and 'TL Spin', were also reduced by 24.13%.



Reduced size of carton boxes

UICCP replaced the material of the bottle for their UIC Big Value dish washing liquid from PVC to the lighter PET.



Reduced size of carton boxes

REDUCTION IN TRANSPORT PACKAGING

UICCP increased the number of bags of detergent powder that can be packed into a single carton.

REDUCTION IN MATERIAL WASTAGE DURING MANUFACTURING PROCESS

UICCP refined their packaging processes to reduce the wastage of refill pack material.

UNILEVER SINGAPORE PTE LTD

Unilever is one of the world's leading suppliers of Food, Home Care, Personal Care and Refreshment products with sales in over 190 countries and reaching 2.5 billion consumers a day.

REDUCTION IN PRODUCT PACKAGING

In 2015, Unilever Singapore redesigned its Sunlight 1-litre washing liquid plastic bottle and reduced its weight by 20.7%, from 60.25g to 47.8g. The thickness of the bottle was also reduced from 230 microns to 220 microns.



Thinner and lighter plastic bottles



Thicker and heavier plastic bottles

In 2016, Unilever Singapore redesigned the packaging for its Sunsilk hair care products so that the overall weight of the packaging can be reduced by 4.2%.



Old heavier packaging for Sunsilk hair care products



New lighter packaging for Sunsilk hair care products

VISMARK FOOD INDUSTRIES PTE LTD

Established in the early 1990s, Vismark has grown rapidly throughout the years to keep up with the ever changing needs of the hospitality industry.

REDUCTION IN TRANSPORT PACKAGING

In July 2015, Vismark switched from using double-walled corrugated carton boxes to using single-walled ones for delivering their products.



Double-walled carton box



Single-walled carton box

WANIN INDUSTRIES PTE LTD

Wanin Industries Pte Ltd manufactures and bottles a variety of water products for the local and global markets.

REDUCTION IN MATERIAL USE FOR PRODUCT PACKAGING

In 2010, Wanin reduced weight of PE caps on plastic bottles by more than 20% per piece, from 2.4g to 1.8g.



Weight of PE caps reduced

In 2016, Wanin reduced the weight of its 300ml and 500ml plastic bottles by 3g each.



New and lighter plastic bottles

REDUCTION IN TRANSPORT PACKAGING

In 2011, Wanin reduced the weight of carton boxes used to pack its bottled water from 480g to 440g per piece.

In 2016, Wanin switched from double-walled to single-walled corrugated carton boxes used for delivery of their 300ml and 500ml bottles.



Double-walled carton box



Single-walled carton box

Wanin also reduced the amount of stretched wrap used to wrap boxes when making deliveries.



Carton boxes wrapped with up to 4 layers of stretched wrap



Carton boxes wrapped with up to 2 layers of stretched wrap

WINRIGO (S) PTE LTD

Winrigo is one of Singapore's pioneering companies in green technology, specialising in manufacturing eco-products made from waste to new materials.

REDUCTION IN MATERIAL USE FOR PRODUCT PACKAGING

In 2013, Winrigo worked with its client to change the packaging of their foam wash bottle from high density polyethylene to pouch form, which is 80% lighter in weight and oxo-biodegradable.



LEFT: Original packaging
RIGHT: New packaging

WINRIGO (S) PTE LTD & PRIMA FOOD PTE LTD

In 2010, Winrigo collaborated with Prima Food, Spring Singapore, Singapore Environment Council, Singapore Manufacturers' Federation and the Singapore Institute of Manufacturing Technology to recycle wheat bran into biocomposite cake knives and bags.



The biocomposite cake knife (right), made from recycled plastic and reinforced with wheat bran fibres, is 34% lighter than the conventional cake knife.

WYETH NUTRITIONALS (SINGAPORE) PTE LTD

Wyeth Nutrition provides a wide range of milk formulas for infant and growing children, and adult milk supplements that are available in most supermarkets and retail outlets

REDUCTION IN MATERIAL USE FOR PRODUCT PACKAGING

In 2010, Wyeth Nutrition changed the packaging design for one of their products by reducing the length of the pouch laminate from 230mm to 225mm.



In 2011, Wyeth Nutrition reduced the height of its 900g tin cans containing milk products from 173mm to 163mm



New 900g tin can (left) is 10mm shorter in height compared to the old 900g tin (right)

A similar initiative was implemented in 2013 where the height and weight of its 1.6kg cans for its S-26 milk products were reduced from 205mm to 197mm and from 191.05g to 183.6g respectively.



Original 1.6kg tin can (left) and tin can after height and weight reduction (right)

In another initiative in 2011, Wyeth Nutrition reduced the thickness of aluminium lids used on its tin cans from 0.29mm to 0.23mm



Aluminium lids with reduced thickness of 0.23mm

REDUCTION AND REUSE OF PACKAGING WASTE

In 2013, Wyeth Nutrition put back in production the inspected cans that pass the quality assessments, instead of discarding them.

In 2014, Wyeth Nutrition switched from using the Quality Max VLT destructive leak tester to the VeriPac 325D non-destructive leak tester for testing the integrity of its packaging; packaging samples which pass the new method of quality checks can be returned to the production line, in contrast to the old method, which required the packaging samples to be disposed of after testing



Old method of testing for leakages using the destructive leak tester



New method of testing for leakages using the non-destructive leak tester

REDUCTION IN TRANSPORT PACKAGING

In 2009, Wyeth Nutrition reduced the thickness of the shipper cartons, used to pack their canned products for local and overseas markets, from 712gsm to 512gsm.



Reducing thickness of delivery boxes

In 2013, Wyeth Nutrition reduced the width of the shipper carton for its twin pack (2 x 600g and 2 x 650g) products by 8mm.

The weight of the shipper carton for the 1.6kg cans for its S-26 products was also reduced from 403g to 392g.

In 2010, Wyeth Nutrition reduced the number of cartons used by packing their products in-house instead of engaging an external packer.

In 2013, Wyeth Nutrition altered the wooden pallet's size and the product stacking's configuration to achieve an optimal use of space on its pallets for the transportation of goods.



Semi-finished goods at Wyeth Nutrition

YHS (SINGAPORE) PTE LTD

YHS produces and distributes a wide variety of food & beverage products, including the well-known YEO's beverages.

REDUCTION IN TRANSPORT PACKAGING

In 2008, YHS used a thinner shrink film (50 micron instead of 65 micron) to hold together canned drinks packaged in carton boxes.



Down-gauging the thickness of existing plastic shrink film



This paper is made of recycled post-consumer beverage cartons.



SINGAPORE
PACKAGING
AGREEMENT



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