

**PROGRESSIVE ENTERPRISES LIMITED**



**Packaging Specifications**

**For Vendor Packs and Store Shippers**

**Dated: 26 August 2010**

**Version: v1.1b**

## Table of Contents

<b>1 INTRODUCTION TO PACKAGING SPECIFICATIONS</b>	<b>3</b>
<b>2 GENERAL PACKAGING REQUIREMENTS</b>	<b>4</b>
<b>2.4 PACKAGING MATERIAL</b>	<b>4</b>
2.4.1 Ambient products	4
2.4.2 Perishable products	4
2.4.3 Produce	4
<b>2.5 PACK SIZE</b>	<b>5</b>
2.5.1 Dimensions	5
2.5.2 Weight	5
2.5.3 Shape for Pallet Stacking	5
<b>2.6 INNERS</b>	<b>5</b>
<b>2.7 STRENGTH</b>	<b>6</b>
2.7.1 Strength Test	6
2.7.2 Carton Handling Test	6
<b>2.8 SHARP OR HAZARDOUS CONTENTS</b>	<b>7</b>
<b>2.9 CARTON SEALING</b>	<b>7</b>
<b>2.10 EASE OF OPENING</b>	<b>7</b>
<b>2.11 BAGS</b>	<b>7</b>
<b>3 PALLET CONFIGURATION</b>	<b>8</b>
<b>3.1 PALLET STANDARD</b>	<b>8</b>
<b>3.2 PALLET HEIGHT</b>	<b>8</b>
<b>3.3 PALLET WEIGHT</b>	<b>8</b>
<b>3.4 OVERHANG</b>	<b>8</b>
<b>3.4 PALLET STABILITY</b>	<b>8</b>
3.4.1 Stability Test	8
<b>3.5 PALLET UTILISATION</b>	<b>8</b>
<b>3.6 PALLET NUMBER OF LINE ITEMS</b>	<b>8</b>
<b>3.7 PALLET DISPLAY QUANTITY - PDQ</b>	<b>8</b>
<b>3.8 THE PALLET – "DON'TS"</b>	<b>8</b>
<b>4 SHELF READY TRAYS (SRTS)</b>	<b>9</b>
<b>4.1 GENERAL</b>	<b>9</b>
<b>4.2 PACKAGING MATERIAL</b>	<b>9</b>
<b>4.3 DESIGN OF TRAY</b>	<b>9</b>
4.3.1 Tray height	9
4.3.2 Tray Shape	10
4.3.3 Tray Colour	10
4.3.4 Tray Strength	10
4.3.5 Tray Cardboard	11
4.3.6 Tray Material Thickness	11
<b>4.4 PLASTIC OVER WRAP</b>	<b>11</b>
<b>4.5 SIDES</b>	<b>11</b>
<b>5 SLIP-SHEETS SPECIFICATIONS FOR INDENT (IMPORT) SHIPPING CONTAINERS</b>	<b>12</b>
<b>5.2 SLIP-SHEETS</b>	<b>12</b>
5.2.1 Slip-sheet dimensions	12
5.2.2 Slip-sheet Material	13
<b>5.2 DEFINITION OF A TI-HI</b>	<b>13</b>
5.2.1 Ti Hi Stability	13
<b>5.3 PALLETS IN CONTAINERS</b>	<b>13</b>
<b>GLOSSARY OF TERMS</b>	<b>14</b>

## **1 Introduction to Packaging Specifications**

- 1.1 Effective packaging specifications that take into account the needs of manufacturing, distribution, store operations and the consumer are crucial for an efficient flow of goods. The purpose of this document is to provide a “single source” of information in order to allow trade partners to effectively design packaging according to Progressive’s specifications.
- 1.2 Prior to this document there was no widely distributed published packaging standard for PEL. This document sets minimum standards for packaging based on reasonable practical requirements to ensure that products can survive the supply chain end to end undamaged and in an efficient manner.
- 1.3 This document does not include specifications for retail units, barcodes or labelling.
- 1.4 These packaging standards are not an additional new requirement but are an articulation of reasonable packaging standards that already represent the standard for doing business with Progressive today.
- 1.5 This document is not proscriptive, in that it does not set required packaging types or configurations, however it does specify a number of practical requirements, including some handling tests that must be passed.
- 1.6 The high level objectives of this packaging standard are to:
  - 1.6.1 Meet the requirements for the product to move through the supply chain efficiently.**
  - 1.6.2 Minimise in-store handling when both opening cartons and filling store shelves with products.**
  - 1.6.3 Reduce the amount of packaging material used.**
- 1.7 These specifications are to be read in conjunction with other packaging industry documents and legislative requirements, as appropriate.
- 1.8 This document is based on the *Woolworths Supermarkets Packaging & Barcode Specifications* document published by Woolworths Australia

## 2 General Packaging Requirements

- 2.1 In order to meet the objective of moving through the supply chain efficiently packaging is to:
- 2.1.1 Be able to survive the supply chain intact, end-to-end (the carton / packaging will not fall apart).
- 2.1.2 Provide suitable protection appropriate for the nature of the product (the product will not crush or get damaged). Note that in order to minimise damages it is also critical that a product does not overhang the edges of the pallet, refer to Section 3 Pallet Configuration for more detail.
- 2.1.3 Be able to be readily stacked (ideally rectangular, flat top and bottom and square corners).
- 2.2 For the purpose of this documents product pack sizes are defined as follows:
- 2.2.1 **Vendor Pack** – The product packaged as configured from the vendor to the distribution centre, typically a full case / carton.
- 2.2.2 **Store Shipper** – The product as packaged as shipped from the distribution centre to the retail store, this could be a full case / carton, an inner, or an individual retail unit.
- 2.2.3 **Retail Unit** – The product as packaged for retail sale, as configured for PEL
- 2.3 **Both the Vendor Pack and the Store Shipper** must meet the packaging specifications.

Section	Specifications <i>REQUIREMENTS</i>	<i>GENERAL PACKAGING</i>
2.4 Packaging Material	<p>All materials used in packaging should be recyclable.</p> <p>Do not use packaging made of polystyrene as it increases the potential risk of fire and is difficult to recycle.</p> <p>Where the retail unit contains individual units that are also a barcoded unit, the retail unit packaging must not be transparent, or open ended, otherwise the barcode on the individual unit inside could be accidentally read at the checkout. For example where PEL sells 330ml bottles configured in a retail six-pack, the barcodes on the individual bottles should not be visible.</p>	
2.4.1 Ambient products	For dry grocery type products there are no unique specifications regarding the packaging material for ambient products providing it is sufficiently robust. To suit the product, the packaging may vary from many designs of cardboard or plastic.	
2.4.2 Perishable products	For chilled and frozen type products due to the highly moist conditions resulting from low temperatures within the cold chain, the material used in a vendor pack must be able to withstand moisture.	
2.4.3 Produce	<p>As above the material used for produce vendor pack packaging needs to be moisture resistant in addition to the ability to allow airflow if required for certain products.</p> <p>Returnable hire Plastic Crates are suitable to many produce lines and can also be used to display the goods on the shelf.</p>	

Section	Specifications <b>REQUIREMENTS</b>	<b>GENERAL PACKAGING</b>
2.5 Pack Size	<p>Pack size will be primarily driven by the rate of sale, however the following factors should be considered:</p> <ol style="list-style-type: none"> <li>1. Dimensions – should not be too bulky (see section 2.5.1 below).</li> <li>2. Weight – should not be too heavy (see section 2.5.2 below).</li> <li>3. Pallet configuration – the packaging should be able to be stacked so that it efficiently utilises the entire pallet footprint, and allow for interlocking stacking (see section 2.5.3 below)</li> </ol>	
2.5.1 Dimensions	<p>For vendor packs larger than 40cm x 50cm x 85cm (considered “bulky”), Countdown Logistics needs to be consulted before the product is ranged. Ideally “bulky” items should have handles and weigh less than 12kg.</p> <p>The ease of lifting and carrying a vendor pack needs to be considered when designing its dimensions.</p>	
2.5.2 Weight	<p>16 kilograms weight and under is acceptable, however 12kg is the Progressive target vendor pack weight.</p> <p>If between 16kg and 20kgs, Countdown Logistics needs to be consulted before the product is ranged.</p> <p>Product weight must not exceed 20kgs without authorisation of Countdown Logistics General Manager.</p>	
2.5.3 Shape for Pallet Stacking	<p>Vendor packs should be rectangular, rather than square, in order to allow for interlocking stacking (as opposed to column stacking) for pallet stability.</p> <p>Vendor packs should be optimised so that they can be stacked to efficiently utilise the entire pallet footprint (1000mm x 1200mm) without any overhang whatsoever.</p>	
2.6 Inners	<p>If there are multiple Store Shippers within a vendor pack these are called “Inners”. <u>Inners must pass all strength and handling tests</u>. Inners are to be avoided, if possible.</p> <p>Inners should only be used in the carton live storage (CLS) section of the DC.</p> <p>Only use inners if:</p> <ol style="list-style-type: none"> <li>1. Store Shippers do not stack easily <u>or</u></li> <li>2. Very small Store Shippers (10cmx10cmx20cm or less) <u>and</u></li> <li>3. There are at least 4 Store Shippers in the vendor pack.</li> </ol> <p>The number of facings or the minimum display quantity on shelf has no relationship to whether an “inner” is used. If the shelf does not hold a great quantity due to a slow rate of sale, avoid inners in favour of a small vendor pack.</p>	

Section	Specifications <b>REQUIREMENTS</b>	<b>GENERAL PACKAGING</b>
2.7 Strength	<p>Whether cardboard, plastic or bag wrap is used; the pack should be constructed with sufficient strength to move through the supply chain from the trading partner to the store shelf without losing its contents or allowing damage to the product. Furthermore, the pressure of cartons and pallets stacked on top of the pack as well as the dynamic forces of transport need to be considered when designing the packaging. If cardboard is used consultation should be made with the cardboard manufacturer for correct board type and grade relative to the weight of the contents.</p>	
2.7.1 Strength Test	<p>To test the strength of the packaging, apply <u>25kg force on one corner side (edge)</u> 3 times in succession. If the contents stay inside without the pack opening, or tearing, or the product becoming damaged, it is considered to be sufficient.</p> <p><b>Strength Test:</b> 25 kg pressure on an edge</p> <div data-bbox="730 555 1038 763" data-label="Diagram"> </div>	
2.7.2 Carton Handling Test	<p>The ability for the packaging to hold a product is tested by a carton-handling test. The carton-handling test is a practical test to see if the packaging will come apart during the course of normal handling.</p> <p><b>Carton Handling Test:</b> Lift the carton / tray using fingers only in the side openings; the palm of hands should not make contact with the carton. Next, jerk the carton/tray in a downward motion five times repeatedly. For cartons / packaging where it is not possible to get fingers into the side of the packaging this test should be conducted holding the ends of the packaging. If the contents stay inside the pack after the test it is considered to be sufficient.</p>	



Note in the photo above to the left, the correct way to hold one side of the carton in the carton-handling test. The photo above to the right shows an example of an intact carton that has successfully passed the carton-handling test.



The photo on the left shows an open sided all cardboard type of carton design. This type of carton must pass the handling test using fingers in the side openings.

<b>Section</b>	<b>Specifications REQUIREMENTS</b>	<b>GENERAL PACKAGING</b>
2.8 Sharp or Hazardous Contents	<p>Hazardous goods must be appropriately labelled and packaged.</p> <p>Aerosol cartons must be designed to be opened without the use of a sharp tool (eg use tape to seal the vendor pack or use perforated cardboard).</p> <p>Sharp items, such as cutlery, must have a durable protective shield over the sharp tip within the consumer unit packaging.</p>	
2.9 Carton Sealing	<p>If glue is used to hold the carton together, ensure the cardboard tears before the glue gives way. If the carton becomes too difficult to open, reduce the amount of glue used.</p> <p>The use of any food grade glue for sealing cartons is acceptable (hot melt glue is used by most trade partners).</p> <p>Tape is also acceptable.</p> <p>Metal is not to be used (eg staples or straps).</p> <p>Plastic straps are not to be used on individual cartons.</p>	
2.10 Ease of Opening	<p>Consideration should be given to how the store employees open the vendor pack to fill the shelf.</p> <p>Reduce the need for a knife to be used at store or DC level (eg. use of tape, perforated cardboard to open the vendor pack); this requirement does not supersede the Carton Handling and Carton Strength tests above.</p>	
2.11 Bags	<p>For either plastic or paper type bags, ensure they are tight and do not tear easily. If the bag is paper it should be two layers thick to protect the contents if one layer tears.</p> <p>Plastic or paper type bags should only be used if product is sufficiently robust that it will not be damaged from handling within the supply chain, and only if the bag is sufficiently robust that it will not fall apart.</p>	

### 3 Pallet Configuration

Section	Specification <b>CONFIGURATION</b>	<b>PALLET</b>
3.1 Pallet Standard	All products on a pallet intended for Progressive must be on a <u>NZ Chep Standard</u> pallet in a good condition. Note a NZ Chep Pallet standard is 1000 x 1200 mm, smaller than standard Australian Chep pallet dimensions.	
3.2 Pallet Height	Progressive's standard pallet height at receipt is 1.4 metres, including the height of the pallet.  Depending on the product and replenishment requirements Progressive may require pallets at other pallet heights less than 1.4 metres and up to a maximum of 2.1 metres.	
3.3 Pallet Weight	The maximum weight for a pallet is 1000 kg, including the weight of the pallet in all Progressive DCs	
3.4 Overhang	Product must be within the confines of the pallet, <u>no overhang at all is permitted</u> . This is crucial to prevent product damage. Imported product must be configured to a NZ standard pallet configuration. Product that settles during transit, or in storage, needs to be configured so that it will not overhang the pallet edges after settling.	
3.4 Pallet Stability	All pallets must be securely wrapped using stretch wrap. The wrap must be secured to cover from around the base of the actual wooden pallet to the entire height of the product. Pallet capping is optional.	
3.4.1 Stability Test	To verify pallet stability, trade partners should use a vibration test on the pallets. This can be achieved by loading the pallet onto a truck and conducting a travel test. It may be necessary to include additional measures such as PVA glue spots between vendor packs to increase stability.	
3.5 Pallet Utilisation	Full pallet footprint utilisation without any carton overhang whatsoever will add supply chain efficiencies by increasing the number of cartons held on a pallet, hence less pallet reserve slots and pallet moves will be required.	
3.6 Pallet Number of Line Items	One line item per pallet. If the Purchase Order (PO) is for less than a pallet layer, four line items on a pallet is permissible.	
3.7 Pallet Display Quantity - PDQ	Pallet Display Quantity (PDQ) configurations can be used to display consumer units in a full pallet configuration in store.  <ol style="list-style-type: none"> <li>1. The pallet must be able to be quickly set up in the store.</li> <li>2. There must be a skirt supplied with the PDQ, to hide the pallet from view when on display.</li> <li>3. Ideally One-Touch cartons are used to replenish the PDQ</li> <li>4. If a strap is used to secure half or quarter pallets (transported on a full pallet), the strap must be underneath a cardboard cover with an access hole to cut the strap safely at stores.</li> </ol>	
3.8 The Pallet – "Don'ts"	<ol style="list-style-type: none"> <li>1. Don't use tape that adheres to the retail unit.</li> <li>2. Don't use shrink wrap (Note: "shrink wrap" is different from "stretch wrap").</li> <li>3. Don't use metal strapping or metal clips.</li> <li>4. Don't use corner posts.</li> <li>5. Don't use slip-sheets or pallet pads between the lowest layer of cartons and wooden pallets or carton layers and other carton layers when stored in a DC. (Note however that a slip-sheet for use with indent (imported) shipping containers is required, see section 5).</li> <li>6. Don't column stack.</li> <li>7. Don't change any characteristics about pallet configuration without approval.</li> <li>8. Don't leave stretch wrap "tails" hanging off pallets.</li> </ol>	

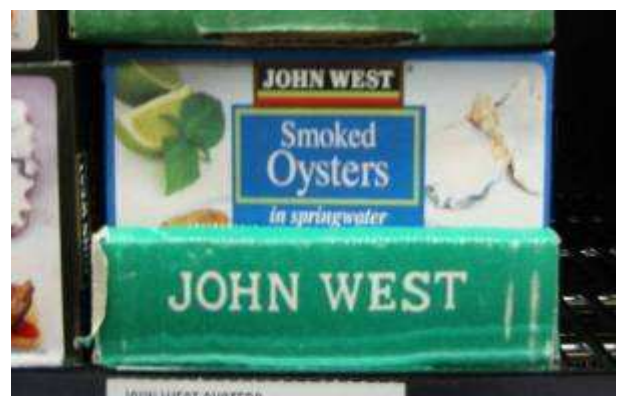
**4 Shelf Ready Trays (SRTs)**

Section	Specification <i>READY TRAYS</i>	<i>SHELF</i>
4.1 General	Shelf Ready Tray (SRTs) must comply with all general packaging specifications for vendor packs with an additional requirement: Shelf ready trays that contain glass must not weigh more than 10 kg.	
4.2 Packaging Material	Shelf ready trays are intended to complement the product they are displaying. The use of highly reflective, foiled or mirrored material is not appropriate (please see section titled "Tray Colour" below for details).	
4.3 Design of Tray	<ol style="list-style-type: none"> <li>SRTs must allow a customer to "see" 80% or more of the consumer units contained within (refer to photo below).</li> <li>SRTs should not carry promotional messages or flags. Nothing is permitted to be protruding or hanging outside of the tray.</li> </ol>	



The photo above shows a SRT design that has 80% or more of the consumer units visible to the customer. It has been designed with tall sides to provide carton strength and stability.

Section	Specification <i>READY TRAYS</i>	<i>SHELF</i>
4.3.1 Tray height	<ol style="list-style-type: none"> <li>If the tray height is greater than 20% of the product, the front of the tray must be removable to reveal 80% or more of the consumer unit contained within (see photo below on the left).</li> <li>Tray height must be a maximum of 20% of the consumer unit height (see photo below on the right).</li> </ol>	



This photo shows the front of the tray designed to reveal 80% The correct tray height should be no more than 20% of of the product whilst retaining strength in the corners. the consumer unit height (this one is incorrect).

Section	Specification <b>READY TRAYS</b>	<b>SHELF</b>
4.3.2 Tray Shape	The tray shape should be rectangular rather than square as this provides better stability on pallets (vendor pack can be interlocked on each pallet layer more easily) and can also accommodate two shelf-facing options.	
4.3.3 Tray Colour	The tray colour complements the product - or assists the consumer to "differentiate" between different flavours or varieties in the category range. Unless it specifically complements the product, brown or raw cardboard colour is not acceptable.	



The photo above shows a colour selection complementing the product to improve its appeal to customers from the shelf.

Section	Specification <b>READY TRAYS</b>	<b>SHELF</b>
4.3.4 Tray Strength	The tray should be able to be handled onto a shelf without buckling once the over wrap has been removed, this is referred to as "The Buckling Test". (refer to photos below).	



retail units from moving before the tray can be placed onto a shelf.

The shelf ready trays shown in the examples to the left do not pass the buckling test. The shelf ready tray has buckled and does not prevent the

Section	Specification <b>READY TRAYS</b>	<b>SHELF</b>
4.3.5 Tray Cardboard	In general, a corrugated cardboard tray is strongest when the grain runs parallel to the carton's longest side.	
4.3.6 Tray Material Thickness	To conserve shelf space, the tray wall should be as thin as practicable without causing the tray to buckle and is relative to the weight of its contents. Consultation should be made with the tray manufacturer for correct board type and grade.	



In the photo notice the thin sides of the shelf ready trays designed to conserve shelf space.

Section	Specification <b>READY TRAYS</b>	<b>SHELF</b>
4.4 Plastic Over Wrap	<p>The strength of an over wrap (made of thin plastic) is important so that a shelf ready tray (SRT) can maintain its integrity throughout the entire supply chain without loss or damage to the consumer units contained within.</p> <p>The most important specification is the type and thickness of plastic used so that the SRT will pass the "Carton Handling Test".</p> <p>It is recommended that for product weighing more than 8kg the plastic over wrap thickness should typically range between 70- 75 <math>\mu\text{m}</math> (microns, 1/1000 of a metre).</p>	
4.5 Sides	<p>Shelf ready trays should not hinder the customer's selection of an item.</p> <p>If any useful information on the consumer unit is obscured by the tray, this information may be printed on the tray for the customer to see; for example:</p> <ol style="list-style-type: none"> <li>1. Product description.</li> <li>2. Vendor name or brand.</li> <li>3. Unit size (eg 50g).</li> </ol>	

## 5 Slip-Sheets Specifications for Indent (Import) Shipping Containers

5.1 Using slip sheets for handling product in and out of containers has the following benefits:

5.1.1 Reduced manual handling.

5.1.2 Reduced labour hours.

5.1.3 Improved turn-around time of overseas shipping containers.

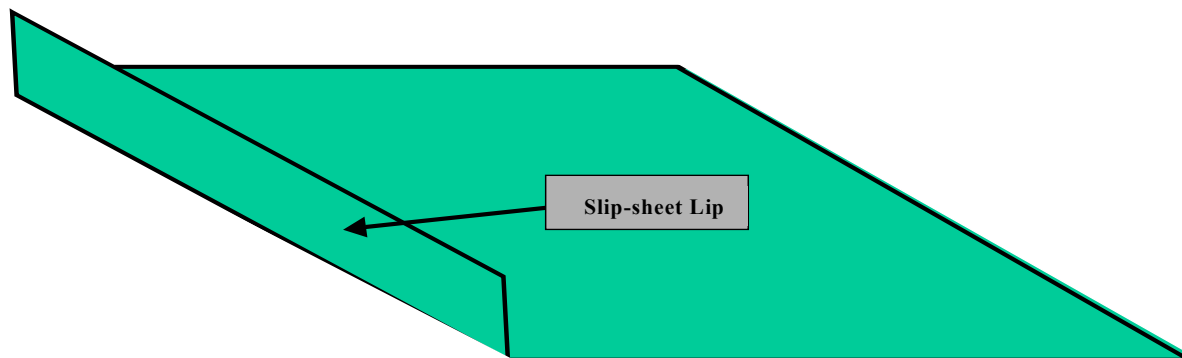
5.1.4 Reduced damage.

Section	Specification <i>SLIP-SHEETS</i>
5.2 Slip-sheets	Slip-sheets are used to move a preconfigured Ti-Hi (full pallet) from inside a container onto a pallet outside the container using a forklift with a hydraulic "push/pull" attachment. The forklift clamps on to the protruding flap on one end of the slip-sheet and pulls the slip-sheeted Ti Hi of stock onto the forklift tines (see photo below).



The photo shows a forklift fitted with a slip sheet attachment preparing to pull a Ti-Hi onto its tines.

Section	Specification <i>SLIP-SHEETS</i>
5.2.1 Slip-sheet dimensions	<p>Shipping container internal dimensions vary with different makes and types of container. Slip-sheets must be of sufficient size to be able to place one slip-sheeted Ti Hi of stock next to another across the width of a container. There must be no overhang of the slip-sheet from the Ti Hi of stock otherwise the overhanging slip-sheet will get caught and impede its removal.</p> <ol style="list-style-type: none"> <li>1. The maximum dimensions for a slip-sheet are 1200mm by 1000mm. <b>Important Note:</b> NZ Chep Pallets are a different configuration to Australian Chep Pallets. Imported product shipped to NZ needs to be configured to NZ Chep Pallet Configurations.</li> <li>2. One end of the slip-sheet has a flap (or fold) approximately 75mm that protrudes from the end. This is used by the hydraulic forklift "push/pull" attachment to clamp onto the slip-sheet and this flap must not be crushed or tucked under the ti hi of stock. (see diagram below).</li> <li>3. The thickness of a slip-sheet is 0.7 mm but up to 1.5 mm is permissible.</li> </ol>



Example of a slip-sheet showing the flap or fold approximately 75mm from one end.

Section	Specification <i><b>SLIP-SHEETS</b></i>
5.2.2 Slip-sheet Material	1. Progressive requires a plastic slip-sheet, as this material does not tear as easily as cardboard when damp or moist.  2. Slip-sheet material is normally laminated.  3. The material slipperiness should be a coefficient of friction of 0.3, otherwise the slip-sheet will tend to pull the cartons both on top of it and underneath.
5.2 Definition of a Ti-Hi	A Ti-Hi is a term for a particular pattern or configuration of cartons stacked together. A layer of cartons is a <b>T</b> ier. The number of carton layers <b>H</b> igh is referred to as the " <b>H</b> i" – hence " <b>Ti-Hi</b> ".
5.2.1 Ti Hi Stability	The cartons on a Ti Hi of slip-sheeted stock where possible must be cross-stacked or interlocked as this is safer and more stable than being column-stacked.
5.3 Pallets in Containers	Pallets must not be used in shipping containers as they take up valuable cubic capacity of the container and therefore will increase the landed cost of goods. They may also cause further MAF complications with wooden or other pallets.

## **Glossary of Terms**

**CLS** – Carton Live Storage materials handling racking system common in DCs.

**Indent** – Products supplied from overseas.

**Inner** – More than one Store Shipper contained within a Vendor Pack.

**MAF** – Ministry of Agriculture and Forestry

**OM** – Order Multiple a unit of measure for a Store Shipper ordered by a store and can be an inner or a full carton.

**Pack Size** – The configuration of vendor packs and Store Shippers.

**PDQ** – Pallet Display Quantity

**PO** – Purchase Order.

**POS** – Point of Sale. The point at which goods are purchased.

**Replenish** – To take a pallet from a reserve location in the DC to a picking location.

**Store Shipper** – The product as packaged as shipped from the distribution centre to the retail store, this could be a full case / carton, an inner, or an individual retail unit.

**Shrink Wrap** - A method of securing vendor pack onto a pallet, the plastic is heated and shrinks tightly over the pallet of goods – **Progressive does not permit Shrink Wrap to be used.**

**SRT** – Shelf Ready Tray.

**Store Friendly** – Countdown Logistics must support the stores needs – with the objective of “end to end” supply chain optimisation.

**Stretch Wrap** –A method of securing vendor pack onto a pallet, a plastic film is wrapped around the cartons and securing them either a hand roll or applied by machine at point of manufacture or distribution. “Tails” of plastic must not hang from the pallet.

**Ti Hi** – Carton stacking pattern for use when palletising vendor pack or use for indent shipping containers. **Ti** = No. of cartons on a **Tier** (or layer) **Hi** = No. of layers **High**.

**Trade Partner** – A supplier or vendor that sells its product to Progressive for on-sale to the end consumer.

**Vendor Pack** – The product packaged as configured from the vendor to the distribution centre.