Freight Container (Dry-Boxes) Load Security - Ocean

HSES GL_612

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1. Purpose

The loading, stowage, blocking and bracing of goods in any means of transport must be carried out in conformance with the applicable national/international regulations and any additional Syngenta requirement to ensure the highest level of safety during transport.

It is recommended to install the TyGard 2000® securement system in all freight containers (dry-boxes) of Syngenta Crop Protection products shipped by ocean.

This guidance has three primary objectives:

- to reduce shipping delays and unanticipated costs due to improper load security,
- to eliminate the requirement to fumigate to comply with the IPPC wood pest protection requirements, and
- to stabilize materials inside shipping containers to reduce handling risks at receiving locations.

2. Scope

This guidance document applies to all who are involved in loading freight containers on behalf of Syngenta with Syngenta products. It applies to primary and secondary logistics[1]. It also applies to inbound logistics,[2] when Syngenta manages the transport of procured materials or selects the Logistics Service Provider that is used.

It does not apply to any logistics operations where Syngenta does not have a contractual relationship with the logistics service provider e.g. logistics for procured materials where the supplier is responsible for delivery of the material.

3. Definitions and Abbreviations

TyGard 2000® -	Synthetic fabric based, adhesive material that has been demonstrated to provide superior restraint to packages in a container when the container is exposed to the stresses of transport. TyGard has been accepted by the majority of road, rail, and vessel lines as an acceptable load security system. Due to its simplicity, there is little interpretation during container inspection
Load security	Installation of a system to prevent packaged goods from moving or shifting within a shipping container or vehicle.
IPPC wood pest protection standard	This standard describes phytosanitary measures to reduce the risk of introduction and/spread of quarantine pests associated with wood packaging material (including dunnage), made of coniferous and non-coniferous raw wood, in use in international trade. In application it requires that all international shipping containers that contain wood securement or dunnage components to use treated components.

[1] In Syngenta, Primary logistics is defined as the journey from the production plant to warehouse in-market. Secondary logistics is the journey from the in-market warehouse to the final customer.

2 In bound logistics is the transport of purchased materials from the supplier to the production location where they will be consumed.

	Components can be treated prior to use, or the container will need to be fumigated prior to being loaded into the vessel.
Inter-modal containers	Often referred to as a “dry box”, this is a metal container designed to consolidate non-bulk packages. It has the capability to be transferred between road, rail, and vessel carriage
Container Packing Certificate	A signed document by the shipper indicating that a container has been prepared for shipment in full compliance with the IMDG regulations. This includes: container was clean and dry, all materials placed in the container are compatible, all packages were inspected prior to being placed in the container, the weight is evenly distributed within the container, and all packages have been secured to prevent shifting or damage to the packaging or container
Container Marking	The application of the UN identification number, and when required, the Marine Pollutant mark to both ends and both sides of the container. These marks should be no less than 5 feet from the bottom of the container.
Container Placarding	Application of the primary, and where appropriate, subsidiary Hazard Class placards to both ends and both sides of a container. Placards should be no less than 5 feet from the bottom of the container
TyGard Strip	a pre-measured length of TyGard material that has an adhesive material on one end.
Ty Patch	adhesive backed TyGard material designed to connect the ends of two TyGard strips
TyGard Band	A completed application consisting of two TyGard strips (one on each side of the container) connected by a Ty Patch

4. Guidance

4.1 Container packing/loading location

- Perform and document pre-load container inspections.
- Container packing/loading locations must conduct a pre-loading inspection of containers. Where conditions observed during the inspection disqualify the container, replacement container to be organized.
- Containers to be inspected for as required in HSE_CoP_612 Safety and Security Checks for Freight Containers (Dry-Boxes) Ocean
- Observe container maximum weight, and weight distribution limits,
- Properly install the TyGard security system,
- Complete the Container Packing Certificate,
- Apply Container Marking and Placarding.
- Apply a High Security Bolt seal, and record the seal number on the shipping document.

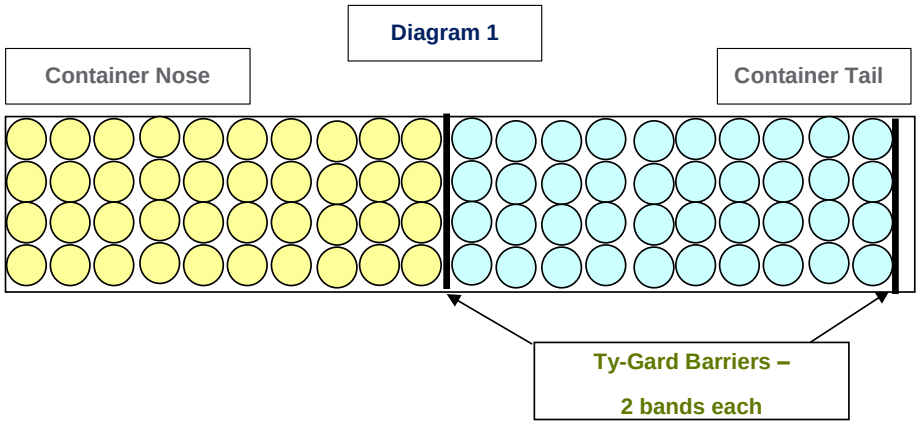
4.2 Procedures

- Any questions regarding the correct application of TyGard should be directed to the regional distribution safety manager.
- Facilities who have not previously used TyGard will need to purchase the required tools, and an initial supply of TyGard material.
- The application of TyGard within containers is different when the containers are shipped via rail in the US. Two sets of application examples are given to illustrate the differences in the use and placement of TyGard. Rail preparation typically requires additional bands of TyGard, and may require the use of plywood between layers of materials, and at the rear of the container.

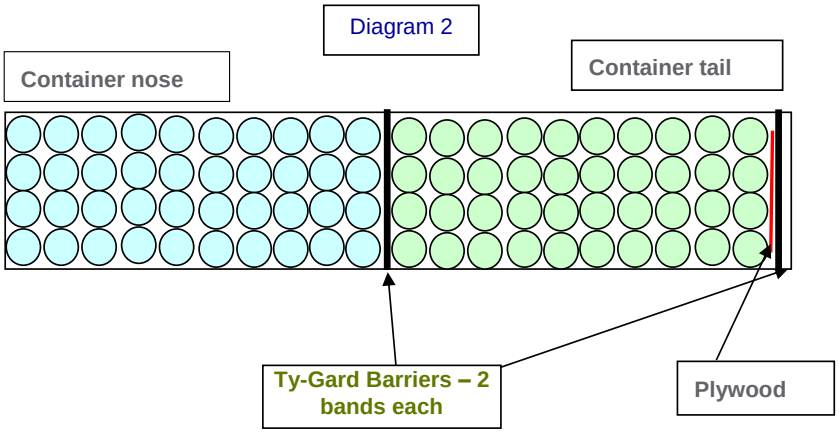
4.3 Application

- A TyGard band consists of two (2) strips of Ty-Gard, and a 4 foot (1.2 m) section of Ty-Patch. At least 5 feet (1.5 m) of the TyGard band must be adhered to the side of the container. The TyGard strips are pre-measured to ensure that 5 feet (1.5 m) of adhesive is available. A complete TyGard band costs about 25 dollars US, and will require 5-10 minutes to install.
- Whenever possible, bands should be used in pairs. One at the bottom of the freight, and one at the top of the freight.
- The restraint capacity of each TyGard band is 15,000 pounds (6800 kg) when the container is transported by vessel and road. Each Ty-Gard band is limited to securing 10,000 pounds (4536 kg) in US Rail service. This makes the use of additional Ty-Gard bands necessary when shipping by rail.

- If the container packer/loader does not know if rail will be used for a container (i.e.; a door move to the US where the forwarder contracts the carriers), the US rail application rules must be followed!
- A 40,000 pound (18,144 kg) load being shipped by road/vessel would require the application of 4 bands of TyGard (40,000 / 15,000 = 2.7). Since TyGard bands are used in pairs, this requires 4 bands. If this load were shipped by rail within the US, 4 bands of TyGard would also be required (40,000 / 10,000 = 4). Refer to diagrams below for application.
- Containers with 80, 225 kg drums require 4 bands. Two of the bands restrain the first 40 drums, and the other two bands are applied in the rear of the container restraining the last 40 drums. (Diagram 1)



- For US rail service, a 40' container filled with 80 drums weighing 225 kg each would require 4 Ty-Gard bands and a sheet of plywood must be inserted between the last 4 drums and the TyGard at the end of the load. The first two bands are installed to restrain the first 40 drums loaded. The final 40 drums are loaded and a piece of plywood is installed. The sheet of plywood is placed between the last row of drums and the TyGard fabric. The plywood is designed to prevent the drums in the center from shifting. The plywood must be the full height of the drums, and must completely span the two center drums. (Diagram 2).



- A 78 drum load double stacked in a 20' container would require 8 Ty–Gard bands for US rail service. The load would be divided into two (2) 20 drum segments, and Two (2) 19 drum segments. The 20 drum segments are loaded in the nose of the container with plywood separating the layers. The top and bottom layers are secured with two Ty-Gard bands each. The 19 drum segments are loaded with three drums in the last row. Again, plywood is placed between the layers. The top and bottom layers are secured with two Ty-Gard bands each.(Diagram 3)
- Loads with 79 drums in 40' containers, or 78 drums in 20' containers, have three (3) drums in the last row. These configurations do not require plywood at the rear of the container between the TyGard and the drums. (Diagrams 3 and 4)

Diagram 3

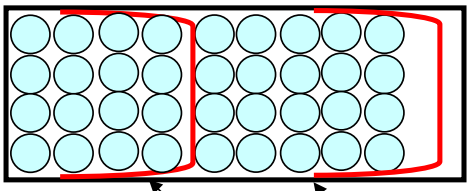
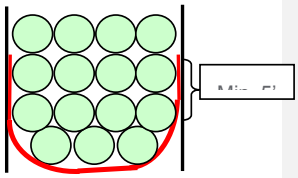


Diagram 4



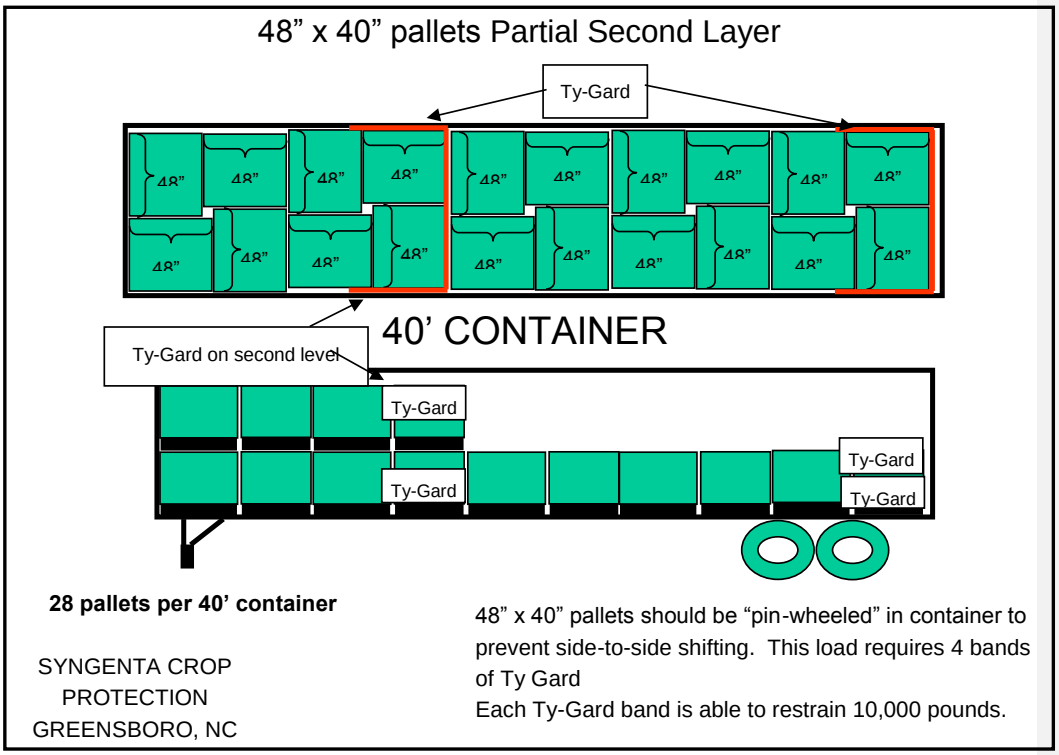
- All applications of Ty-Gard should be taped to the freight along the leading edge. This is to prevent the Ty-Gard from "sagging" if the load shifts forward in transit.

4.5 Further information

- Videos showing Ty-Gard application are available from the HSE website: http://cms/GlobalHSEQ/en/distributionsafety/tygard/Pages/tygard.aspx

Comment [PT1]: Replace this with a link to the Ty-Guard website

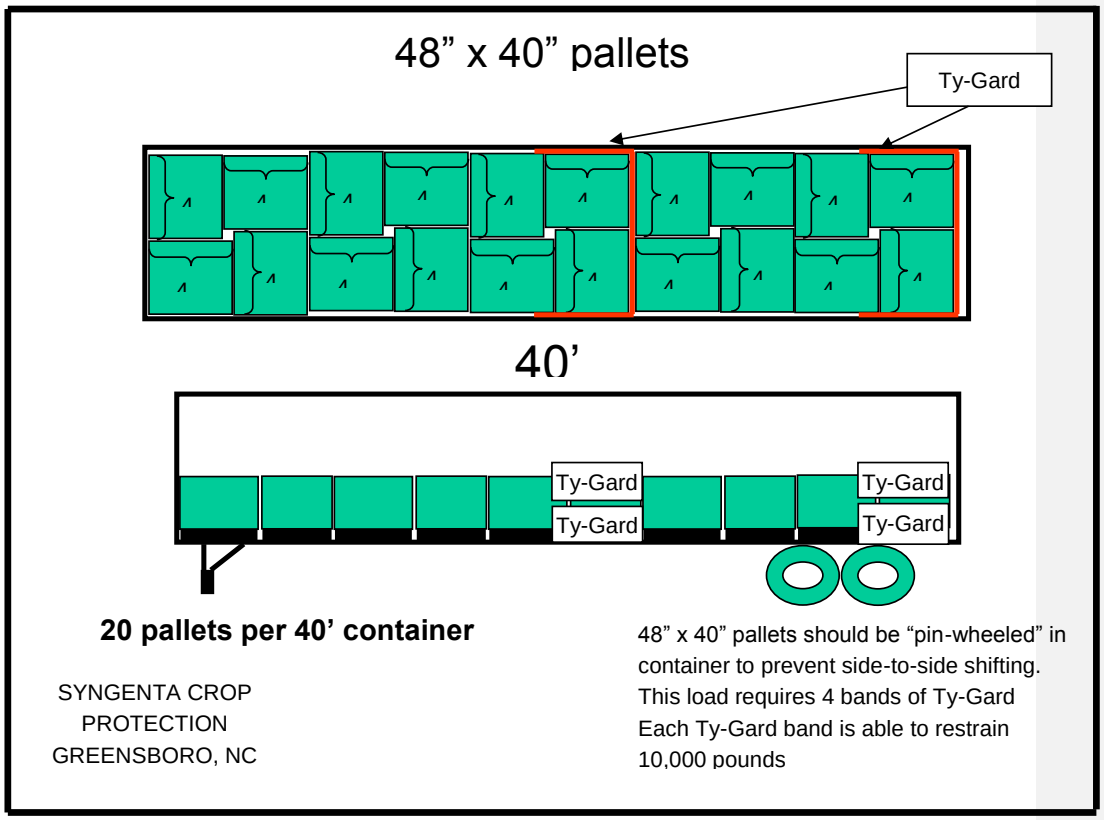
4.4 Example loading diagrams



28 pallets per 40’ container

SYNGENTA CROP PROTECTION
GREENSBORO, NC

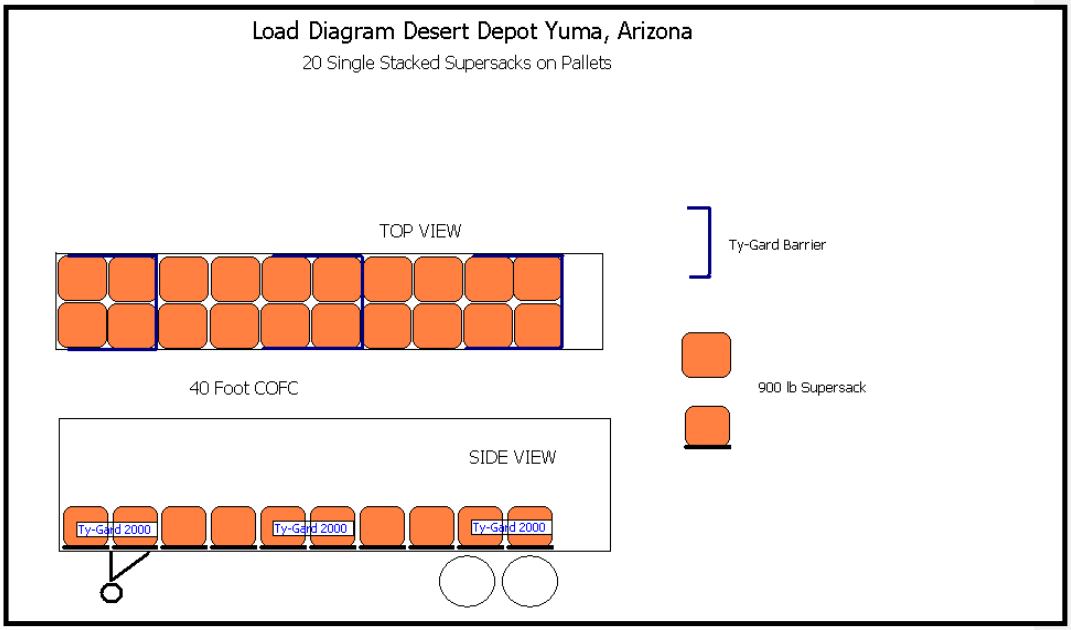
48” x 40” pallets should be “pin-wheeled” in container to prevent side-to-side shifting. This load requires 4 bands of Ty Gard
Each Ty-Gard band is able to restrain 10,000 pounds.

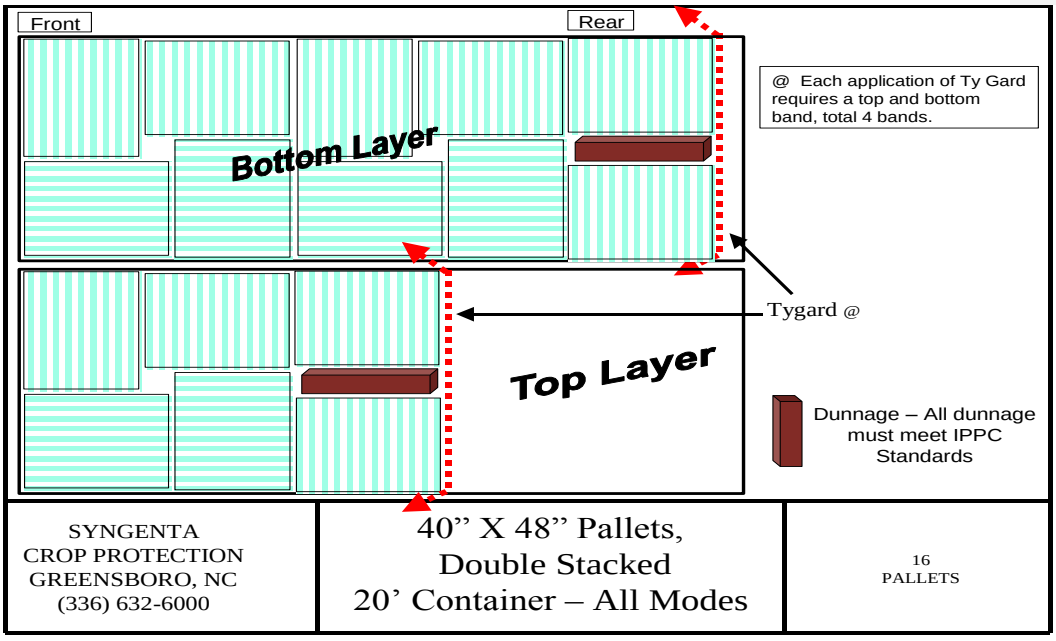


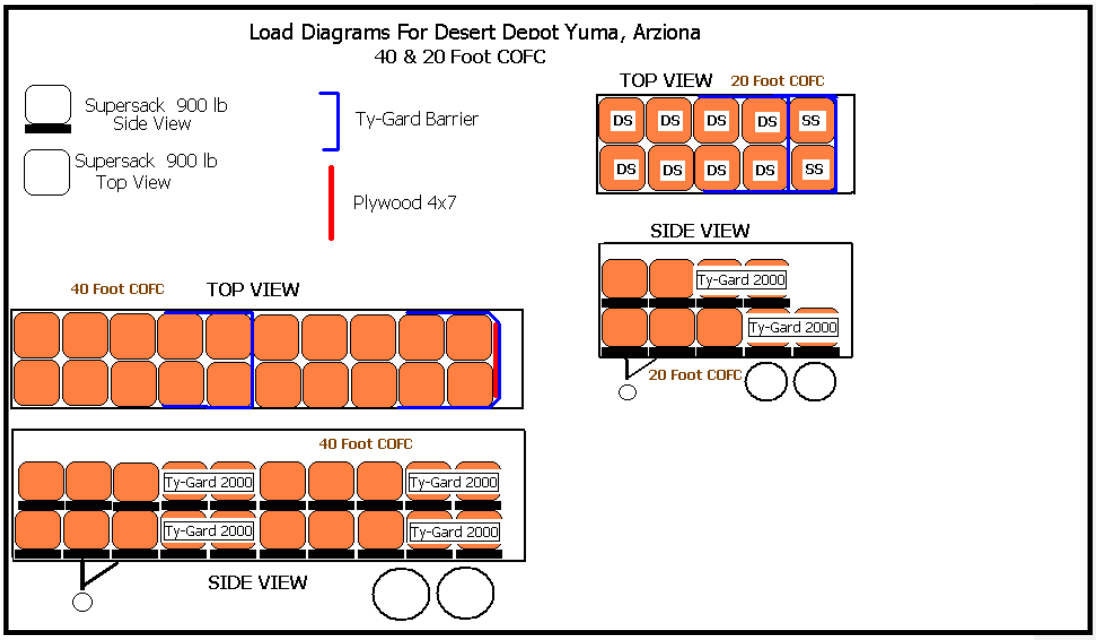
20 pallets per 40’ container

SYNGENTA CROP
PROTECTION
GREENSBORO, NC

48” x 40” pallets should be “pin-wheeled” in container to prevent side-to-side shifting. This load requires 4 bands of Ty-Gard Each Ty-Gard band is able to restrain 10,000 pounds




Front
Rear
Bottom Layer
Top Layer
@ Each application of Ty Gard requires a top and bottom band, total 4 bands.
Tygard @
Dunnage – All dunnage must meet IPPC Standards
SYNGENTA
CROP PROTECTION
GREENSBORO, NC
(336) 632-6000
40" X 48" Pallets,
Double Stacked
20' Container – All Modes
16
PALLETS


Load Diagrams For Desert Depot Yuma, Arziona
40 & 20 Foot COFC
Supersack 900 lb
Side View
Supersack 900 lb
Top View
Ty-Gard Barrier
Plywood 4x7
TOP VIEW
20 Foot COFC
DS
SS
SIDE VIEW
Ty-Gard 2000
20 Foot COFC
40 Foot COFC
TOP VIEW
40 Foot COFC
Ty-Gard 2000
SIDE VIEW


TY-PATCH 2000


TY-PATCH 2000
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