

OFFERING YOU  
A COMPLETE RANGE  
OF CARGO TRANSPORTATION  
SOLUTIONS


**TY-GARD2000®**  
CARGO RESTRAINT SYSTEM

TY-GARD2000® ROAD-GARD® VOID-GARD® TY-PATCH PATENTED 2000® TY-TOOL®

Walnut Industries has been developing and manufacturing unique solutions for the transportation industry since 1981. Prevent damage, meet dangerous goods regulations, minimize injury, liability, and reduce securing costs with Ty-Gard 2000®

- Tested and Approved to secure dangerous goods and general cargo by the Association of American Railroads (AAR) and the BOE. Ty-Gard 2000® also meets the cargo securement guidelines stipulated by IMDG, FMCSA, USCG, RID, ADR & DOT
- Ty-Gard's flexible restraint system is designed to protect your valuable products in transit without damaging your packaging or equipment. Ty-Gard 2000® is the most versatile securement system in the marketplace today. Ty-Gard is approved to secure Drums, FIBCs, IBC's and various types of Palletized and loose cargo.

UK Distributor: Packaging Products (Coatings) Ltd  
Steven A. Wilkinson. Tel: 07836 629899  
e mail: [steve@packagingproducts.co.uk](mailto:steve@packagingproducts.co.uk)

DOWNLOAD OUR LOADING GUIDE APP 



Members of:



**WALNUT**  
INDUSTRIES

Walnut Industries Inc  
Phone: +1 215.638.7847  
Toll-Free: 800.523.6536  
[sales@ty-gard.com](mailto:sales@ty-gard.com)  
[www.ty-gard2000.com](http://www.ty-gard2000.com)

**WALNUT**  
INDUSTRIES







Each year, millions of tons of cargo are damaged in transit because it's not secured correctly

DON'T BECOME A STATISTIC... SECURE YOUR CARGO TODAY





SCAN HERE TO  
VIEW VIDEOS



## 4 EASY STEPS INSTALLATION



### STEP 1 : CUT & PLACE

Cut two lengths of Ty-Gard and one 5ft length of Ty-Patch for each band required.



### STEP 2 : BOND

Adhere Ty-Gard to sidewall in predetermined locations, following corrugations, roll each adhesive section firmly with bonding roller.



### STEP 3 : TENSION

Overlap Ty-Gard lengths, insert Ty-Tool and tension.



### STEP 4 : PATCH

Place Ty-Patch across tensioned Ty-Gard band and firmly roll with bonding roller.

WALNUT INDUSTRIES OFFERS YOU **STRONG AND**

**SIMPLE-TO-INSTALL SOLUTIONS**

### APPLICATION GALLERY

Ty-Gard 2000® is the most versatile securement system in the marketplace today. Please see picture gallery on this page illustrating examples of applications to Drums (steel, plastic & fiber), FIBCs (aka Supersacks), Palletized cargo, Tote Bins and Paper Rolls. The surface area and flexibility provided by Ty-Gard prevents damage to packaging and allows Ty-Gard® to conform to the package geometry



FIBC



Palletized



PE Drums



Steel Drums



IBC's



**AAR APPROVED  
SECUREMENT METHOD**



# BRINGING YOU THE BEST IN CARGO SAFETY AND SECURITY



Very few methods of securement exist which are harmonized to satisfy all the pertinent regulations. Many of the regulations, as you will see detailed below, are performance based, however the railroad regulations are more prescriptive and require specific testing and approval of a securement method. A shipper's options are therefore limited by the implementation of the International Soft Packaging Material (ISPM-15) mandatory requirement to use heat treated or manufactured wood tonnage exhibiting the IPPC seal.



For more information  
Scan here to see the CNN documentary

## ACCELERATION VALUES

One must take accelerations into account and consider the effect of the G forces to which the container will be subjected during its intermodal voyage. These forces need to be compensated for in order to immobilize freight. The accelerations can vary considerably with the different modes of transportation.

## COMPLEX MOVEMENT POTENTIALS

It should also be borne in mind that a ship has six degrees of freedom (i.e. is capable of moving in six different directions) and will often be moving in two or three different directions, each with associated acceleration forces, at the same time.

## INTERMODAL SECUREMENT

In order for cargo to be considered properly secured for an intermodal move, the securing arrangement must be capable of providing a measure of restraint at least equal to the upsetting forces created due to the maximum accelerations anticipated at any stage of the move.

With consideration given to each of the elements described above, effective securement can be achieved to sufficiently secure dangerous cargo across all modes of transportation, leading to safe movement of hazardous materials around the world.

## EVALUATING A SHIPPERS CARGO SECUREMENT NEEDS

## AND REGULATORY REQUIREMENTS

### RAIL TRANSPORTATION

Rail transportation subjects the transport units and cargo to extremely demanding longitudinal impacts. The pertinent regulatory authorities in each jurisdiction clearly specify the requirement to secure dangerous goods cargo against movement. The rail transport of dangerous goods in the EU is governed by the regulation for the application of the international railway transport of dangerous goods, known commonly as RID. Neither The Association of American Railroads (AAR) nor its individual railroad members take securement standards lightly. The railroad industry publishes standards in the Intermodal Loading Guide following extensive testing. United States federal government regulations are codified by a unit of DOT known as the Pipeline and Hazardous Materials Administration which maintains (at 49 CFR § 174.5S(a)) a performance-based requirement for securement of hazardous materials as follows; "Each package containing a hazardous material being transported by rail in a freight container or transport vehicle must be loaded so that it cannot fall or slide and must be safeguarded in such a manner that other freight cannot fall onto or slide into it under conditions normally incident to transportation. It must be provided by blocking and bracing."

The "examples" of blocking and bracing referenced in the above regulation are those published in the Intermodal Loading Guide (ILG), which is also designated Bureau

of Explosives Pamphlet No. 6C. Furthermore, not all securement methods which pass impact tests are approved for hazardous materials by the Bureau of Explosives committee. The Intermodal Loading Guide is issued by AAR a private (non-governmental) trade association composed of each of the nation's major (Class 1) railroads, as well as regional, smaller railroads and associate members. Railroad carriers require strict adherence to the ILG methods.

### HIGHWAY TRANSPORTATION

Motor carriage of dangerous goods in the EU is subject to several international agreements that specify in detail the conditions under which such goods may be transported, including the securement of cargo. Highway transport of dangerous goods in the EU is governed by the European agreement concerning the international carriage of dangerous goods by road, known commonly as ADR. Regarding ground transportation, the Federal Motor Carrier Safety Administration (FMCSA) has adopted a revised cargo securement standard.

This takes into account acceleration forces inherent to ground transportation and the Safe Working Load of the securement method satisfies the acceleration requirements.

### OCEAN TRANSPORTATION

The securement of dangerous goods during international ocean transportation is subject to the International Maritime Dangerous Goods (IMDG) Code. That Code sets forth performance-based standards. Section 7.5.2.2 of the IMDG Code provides that, "Packaged dangerous goods and any other goods within the same cargo transport unit shall be tightly packed and adequately braced and secured for the voyage." This clearly permits a shipper to use securement methods other than wood dunnage (which requires ISPM-15 compliance and the IPPC seal). Under the performance-based standard incorporated into section 7.5.2.2 of the IMDG code, a restraint system, including a fabric restraint system, which achieves the specified performance, is acceptable.

The MSL of the securement system will be that of the weakest component or part of that system. With respect to lashing inside containers, the weakest component is often the internal anchor or lashing point (sometimes known as the D-ring) on the container itself. ISO standard 1496-1 Annex F relates to Cargo Securing Systems and specifies the strength requirements for the anchor and lashing points given as only 1000 kg.

IMO/ILU/UN ECE 'Guidelines for Packing of Cargo Transport Units (CTUs)' provides a good source of general information. In general terms, individual

securement components are put together in sequence to create a securement system. Each component will have its own strength rating, and should be designated with a Maximum Securing Load (MSL). This is a percentage of the Breaking Strength of the material and, as the name implies, represents the maximum load that can be safely secured by the component. The manufacturer of the lashing material usually provides this figure. If it is not provided, there are some 'Rule of Thumb' methods of determining MSL available. The IMO 'Code of Safe Practice for Cargo Stowage and Securing' provides relevant information in this regard, particularly in Annex 13 of the publication.

