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## **Working Party on Intermodal Transport and Logistics**

### **Sixty-first session**

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Item 5 of the provisional agenda

### **Code of Practice for Packing of Cargo Transport Units**

## **Code of Practice for Packing of CTUs**

### **Transmitted by ETS Consulting**

## **IMO / ILO / UN ECE Code of practice for packing cargo transport units**

### **Introduction**

This paper considers possible deficiencies in the current edition of the IMO / ILO / UN ECE Code of practice for packing cargo transport units (CTU Code) and research into the visibility of the CTU Code.

### **Deficiencies in the current code**

The time constraints set for the Group of Experts meetings during the preparation of the current edition meant that many items that could have been discussed and agreed for inclusion in the CTU Code were omitted. This paper considers those areas and additional subjects that have been discussed in various forums.

1. The packing of dangerous goods in bulk into general purpose or bulk containers. This would include types of liner, front and rear false bulkheads and packing processes.
2. The Chemical Distribution Institute have produced a number of audits for many aspects of the transport chain and there appears to be minor differences between the CTU Code and their requirement.
3. A new European standard is being considered, Transport stability of packages – minimum requirements and tests. This new standard needs to be considered against the Quick Lashing Guide and other sections within the CTU Code
4. Discussions are underway at the IMO considering the securing of cargoes in extreme weather conditions, the output of the work may result in changes to friction factors.
5. There are a number of documents published by the TT Club and the CINS group on the transport of particular cargoes. It would be worth considering whether these should be

incorporated into the CTU Code and whether additional text should be added to provide greater clarity and information on packing techniques.

6. There appears to be discrepancies between the responsibilities of packers against vehicles drivers, the theory of the CTU Code does not always match real life practices, resulting in the driver being held responsible for securing when they have no opportunity to do so.
7. Many road transport companies do not consider that the CTU Code applies to them, even though they do move the trailers on ferries and by rail.
8. The CTU Code has been considered more than once in road traffic incidents resulting in fatalities, however, in these cases the packer appears to be in countries that the police consider as not worth pursuing.

It should be noted that any changes to the CTU Code will require the agreement of all three parties IMO, ILO and UNECE

## Visibility Research

The first element in the research involved identifying the major organisation types that should be studied, starting with shipping lines and then bringing in other organisations such as NVOCCs / Freight Forwarders and cargoes securing systems suppliers amongst others.

In general results are very discouraging, the CTU Code can be found regularly when using a web-based search engine however as can be seen under the section general web searches the majority of those entries are related to the promotion and advertising of the CTU code rather than its use. The more frequently used term “stuffing” produced more results related to the actual practice of packing containers, however, many of these results related to the promotion of this districts organisations who were advertising their facilities. Only 14% of the results related to packing containers however the majority of these were very basic and limited guides to packing containers.

When looking at shipping lines it was noticeable that the CTU Code was not readily visible, unlike VGM, and to find any guidance on packing containers one generally had to search quite deeply and in areas that one would not have expected. Those shipping lines that have produced some form of packing guideline have, in general, limited those to specialist cargoes. In one shipping line two separate packing instructions had been produced and were available through the searches and each of these varied from the other. In general, the guides were produced before the CTU Code was published and therefore no reference was made to the Code.

Freight Forwarders have very limited information on packing containers and it is an exception rather than the rule that any form of guideline is available.

International and national organisations associated with transport and containers have often produced their own packing guidelines some of which are extremely detailed. However, these often are based on national instructions or European standards the latter being similar, but not identical, to CTU Code. However, the European standards body CEN has proposed a new work item related to the stability of packages and is directly related to the CTU code.

US organisations such as the American Association of Railroads (AAR) and Occupational Safety and Health Administration (OSHA) rely almost exclusively on US regulations and standards almost to the exclusion of other internationally accepted documents or standards.

Many other aspects of the packing process have been explored in this research and in practically all the results studied there has been little substantial information related to correct packing procedures and almost no reference to the old IMO packing guidelines or the CTU Code. Even other UN organisations have not adopted the CTU Code

Some of the organisations have been approached concerning the CTU Code, but there has been little response or feedback.

It is perhaps disappointing that more organisations have not adopted the CTU Code into their packing information or directly refer to the Code as a requirement for packing containers. It is unknown whether or not customers of shipping lines or NVOCCs / Freight Forwarders are verbally informed of the CTU Code especially when considering the bill of lading terms and conditions and shipper's owned containers, both of which should be packed in accordance with the Code.

## Shipping lines

The top 25 shipping lines<sup>1</sup> were selected for this part of the research and each of their web sites investigated. Where available the web site search facility was used to locate information and data. The following terms were used for the searches:

- CTU Code
- Packing
- Loading
- Cargo care
- Guidelines
- Stuffing

The web site sitemap was examined to identify any pages that were likely to generate information on packing containers and the CTU Code.

Finally, the company terms and conditions were identified and examined.

Additional research was carried out, a general search using google for the name of the company plus stuffing and CTU Code.

It was very noticeable that VGM was visible on the home page or could be easily found, whereas on none of the shipping lines websites was there a simple link to packing information or the CTU Code.

Looking at individual companies a number of shipping lines provided some sort of guideline or procedure for packing containers however in general reference is made to the German site <http://www.containerhandbuch.de/> but generally no reference to the CTU code.

Many of the guidelines are specific to refrigerated cargoes or Specialist cargoes such as marble scrap steel and timber all of which do not include reference to the CTU code.

To be fair the majority of the packing guidelines were published well before the publication of the CTU code and which have not been updated subsequent to the publication. Where documents have been published after 2016 some shipping lines have referenced the CTU code.

## Terms and conditions

The shipping lines all have similar terms of conditions and there are a number of clauses that relate to the packing of containers. The following are typical:

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<sup>1</sup> Alphaliner – Top 100: Operated fleets as per 28 November 2017

Under the “Carrier’s Responsibility” the carrier has no liability before acceptance of the goods / cargo or after delivery and the carrier is relieved of liability where the handling, loading stowage of the goods is by the Merchant or persons acting on their behalf.

Under “Shipper-Packed Containers” the Carrier is not liable for loss of, or damage to the contents if the cause is a result of the manner in which the Container has been packed.

Under “Merchant’s Responsibility” the Merchant shall be liable and shall indemnify the Carrier against any loss for any action that is not the Carrier responsibility.

These clauses would indicate that the Carrier is not responsible for any loss prior to the cargo being handed into their care or after the cargo is delivered and that where the packing is not the carrier or their sub-contractor’s responsibility.

Where the Carrier is responsible for the packing:

Under “Sub-Contracting” the Sub-contractor shall not be under any liability for any loss resulting from any act by the Sub-contractor whilst acting on behalf of the principal.

Irrespective of packed the container, the following clause permits the carrier to repack containers:

Under “Methods and Routes of Carriage” the Carrier may unpack and remove the Goods which have been packed into a Container and forward them via Container or otherwise.

There is no guidance, recommendations or requirements to the merchant all Packer in the terms of references that stipulates how the cargo in the container should be packed, and more importantly, where containers are repacked by the carrier there is no terms under which the repacking should occur.

In all the terms of references viewed there is no reference in any form to the CTU code.

## **NVOCCs and Freight Forwarders**

Descartes Datamyne provided information on the top 25 US NVOCCs in waterborne imports. Searches of their websites for references to the CTU code were made, in general, without success.

Where possible, a similar search was carried out on the NVOCCs’ website as that carried out on the shipping lines, with very similar results except the number of sites that included any information on packing was very limited. In general, the individual organisation websites concentrated on the facilities they offered rather than any practices or procedures they followed. A search of their terms and conditions also found that there were no clauses that specifically related to the process of packing containers and had similar terms to those found in the shipping lines terms. This

The example below, not included in the top 25, gives an example of a NVOCC/Freight Forwarder:

### **Universal Cargo**

Based in Los Angeles, USA, Universal Cargo provides port to port or door-to-door in full or less than full container loads. They have been specialising in container shipping since 1985 and provides documents such as “Container Loading Guidelines” and “5 best practices for transporting containers safely by sea”. Neither of these documents reference the CTU code but do provide some useful information albeit limited in scope.

### **World Food Programme**

The WFP as one of the largest shippers in the world and has its own container loading procedure which is linked to US Aid. The information is limited and does not necessarily comply with the CTU Code.

## Packing organisations

There are a number of organisations that are involved in packing containers, quite often when transporting specialist cargos. Of those studied there is little information available on the practices and procedures that they are not when packing containers which is similar to the Freight Forwarders above. Again, there is little evidence of compliance or adoption of the CTU code.

The example below is typical:

### Cargo Secure Ltd

Cargo Secure is based in Felixstowe and Southampton and provide a number of services including packing containers and Out of Gauge (OOG) securing on flatracks. There is no reference to any Packing Procedures or the CTU code.

## Cargo securing systems suppliers

### Cordstrap GmbH

Cordstrap have over 50-year experience in protecting the world's cargo. Their global network of specialists brings their expertise in application development into partnership with their customers, providing advice and training to ensure that their cargo reaches its destination free of damage.

Staff from Cordstrap were heavily involved in the development of the CTU Code and as a result they have extensive coverage on their webs site.

From their Home page (<https://www.cordstrap.com/en/>) the "About" tab leads you into a section on the CTU Code (<https://www.cordstrap.com/en/About/ctu-code/>) which includes a button to download the CTU Code, but not the Informative Material. The page also includes a link to the Training offered by Cordstrap (<https://www.cordstrap.com/en/Knowledge-Center/Cordstrap-Training/>) with a link back to the CTU Code page.

Agents for Cordstrap GmbH such as Cargo Restraint Systems Pty Ltd based in Australia have included text found on the Cordstrap website:

#### *Compliant cargo securing solutions*

*Every transport method and region has its own rules and regulations. When shipping a container from its point of origin to its destination, it will fall under different rules and regulations while in transit. For containerised goods, Cordstrap container lashing solutions comply with the CTU-Code, IMDG and AAR guidelines, which are key to ensuring safe transport.*

*We are ready to help you with all necessary knowledge and skills to safely secure your cargo in a container, ensuring compliance with all rules and regulations – locally and globally.*

Whereas the text CTU-Code, IMDG and AAR Guidelines each have links to the relevant pages on the respective subjects, the agents' pages lack the links, so although the CTU Code is mentioned there is no link or further information.

### Fortris Load Secure UK Ltd.

Fortris Load Secure UK has over 40 years' experience in the Transport industry. They manufacture and supply dunnage bags in paper and woven materials and in all sizes for the maritime shipping industry. They manufacture composite strapping as well as woven polyester strap and hot melt strapping that caters for a wide variety of industries. They claim that they provide all cargo securing products to ensure your cargo is safe and secure during its journey.

Fortris Load Secure is very efficient and effective in securing your cargo over many forms of transport ranging from sea containers, trailers, vessels and railcars. Their strapping is TUV certified and lashing is Germanischer Lloyd approved and our Dunnage Bags are ISO 9001:2008 compliant.

They offer support and guidance on choosing the correct load securing solution for any form of transport. Their stated aims are to meet the demands of, and provide comprehensive load securing solutions to, all industries and transport types: chemical barrel transportation, goods in sea containers, refrigerated goods, cargo on flatracks or cargo in wooden cartons.

In their *Load and Securing Catalogue*, they include a section “Introduction of load security” which references the IMO Guidelines for Packaging of Cargo Transport Units and include what Fortis suggest are the 6 most relevant recommendations.

There appears to be no other recommendations on their site that relates to the CTU code or packing containers.

Other companies such as Strapping Solutions (p) Ltd – Mumbai, Logistiick, Indiana and Ty Gard offer securing materials but no other guidance on securing of the cargo.

## **Container Packing Software**

A web search found at least 15 organisations that offered some form of software to assist in the packing of vehicles and or containers.

Many of the packages appear to have been developed to suit the packing of trailers and therefore loading on axles. As a development, the majority of them also offered the same software for packing containers. When considering the overviews of each of these packages it became clear that the majority of them offered no more than algorithm for placing packages within a void.

Some of the packages provided a centre of gravity related to the packed cargo but did not optimise this when producing the packing plan, therefore the packer was required to manually re-plan this to in order to improve the centre of gravity.

None of the packages appeared to reference the CTU code or any guidance on packing containers.

All of the 15 organisations were invited to comment on their systems in relation to the CTU code but to date, none have replied.

## **International and National Trade Organisations**

### **International Road Union**

Organisations such as the International Road Union (IRU) have produced their own guidelines “International Guidelines on Safe Load Securing for Road Transport” which was published in 2014 and covered many of the subjects included in the CTU code. The guidelines offer practical instructions for securing loads in accordance with European standard EN12195-1:2010.

The trading arm of the IRU, the IRU Academy” have produced a globally available training course “Safe Loading and Cargo Securing” which was published in 2017. The core of the course is based on their own guidelines and no reference to the CTU code is made. The course is directed at any party involved in the loading and securing of cargo including transport operators, commercial drivers, loaders, customers and suppliers.

### **American Association of Railroads (AAR)**

The AAR along with a number of other US and Canadian national railroads have implemented the Intermodal Loading Guide for products enclosed trailers and containers. The guide is intended to

be a comprehensive manual for loading of commodities in trailers and containers for shipment by rail. The general rules as contained in circular 43-E are issued by the AAR and have been formulated for the purpose of providing safe methods of loading enclosed trailers or containers. The AAR states that these general rules must be observed and loading and bracing methods not currently approved may receive consideration for approval.

Many of the blocking techniques described in the Intermodal Loading Guide do not comply with the CTU code and therefore unless the blocking technique described in the CTU code has been subsequently approved by the AAR then that technique should not be adopted.

### **American Chemical Council**

The American Chemical Council have produced their own “Guidelines for Freight Securement: Freight loading and securement the chemical shipments in the polyurethane industry”. This guidance is intended to provide basic principles and examples of freight loading and securement Intermodal domestic and international shipments but are primarily aimed at the transport of drums

The document references some, but not all, regulatory and/or modal requirements governing the shipments, for example 49 CFR part 175, Association of American Railroads (AAR), International Air Transport Association (IATA) and the IMDG code.

### **Confederation of European Paper Industries**

In 2014 CEPI published their “General Cargo Securing Guidelines for Pulp and Paper Products”. This document is designed cargo is transported on the road according to the European standard EN12195-1:2010 and is nearly identical to the IRU publication.

There is no reference to the CTU code.

### **International Trade Centre**

In 2011 the ITC published “The Coffee Exporter’s Guide” which provides information on trade practices relating to exporting coffee. It presents an overview of world coffee trade and markets; deals with the international coffee contracts, logistics, insurance, dispute resolution, future markets and risk management.

In chapter 5, Logistics and Insurance, there is a section dealing with shipping in containers.

There is no reference to the CTU code

### **International safety organisations**

#### **Health and Safety Executive, United Kingdom**

In the 1998 HSE document “Dangerous goods in cargo transport units”, a section headed “The packer” references the out of date British standard BS 5073 *Stowage of goods in freight containers and the packing guidelines* referring to the IMO / ILO UN ECE *Guidelines for packing cargo transport units (CTUs)*.

This document appears to have been published as a PDF in May 2015 but without any modification or amendment to reference the CTU code.

#### **Health and Safety Authority, Ireland**

The Irish Health and Safety Authority have a large section on load securing with a subsection on guidance and publications. One of the major publications is the “International guidelines on safe load securing for road transport” published by the IRU in 2014. Much of the information included in this guideline is similar to that found in the CTU code, however, no reference is made to the code.

### **Occupational Safety and Health Administration, USA**

OSHA cover a number of subjects related to loading and unloading but these mostly relate to powered industrial trucks, personal protective equipment, and other hazards associated with the process rather than the practice of packing containers.

There appears to be no reference to the CTU code or other guidelines except those published in the US.

### **Workplace Safety and Health Council, Singapore**

The Workplace Safety and Health Guidelines "Safe Loading on Vehicles" defines roles and responsibilities, loading and unloading techniques, securing equipment, securing methods and risk management for road vehicles and containers. Published in 2010 there are a number of inconsistencies with the CTU code however there is no reference to the CTU code.

### **Other Packing guidelines**

There are two major websites dedicated to packing containers:

#### **Container Handbook**

The Container Handbook is published by the Transport Information Service (TIS) from the German Insurance Association (GDV e.V.) And provides users with specialist information from German marine underwriters on various aspects of the transport sector.

The German transport insurers' loss prevention committee at GDV saw it as their duty to make a contribution to securing a fundamental improvement in the quality of container transport. The Container Handbook was the result of more than four years' work by three authors, based on the latest internationally recognized CTU (Cargo Transport Unit) packing guidelines. Users can call up fundamental or detailed information from this online resource and can use it for personal study or to support their daily work.

Through the comprehensive explanations in the Container Handbook, the committee wanted to make it possible for all users to put the CTU packing guidelines into practice and they claim that if this standard is strictly adhered to, around seventy percent of all damage in container transportation could be avoided.

The above text is taken from the Container Handbook website and references the old CTU packing guidelines rather than the new CTU Code. However, much of the text does comply with the CTU Code

#### **Cargo Handbook**

The CargoHandbook.com website claims that they provide the world's largest database on transportation of cargoes in the marine industry set up by BMT Surveys. The website is aimed at providing a platform acceptable for everyone to provide and share the best knowledge available on cargo transportation, thereby hoping to contribute to awareness and prevention of loss.

The website provides information on over 800 commodities with emphasis on those characteristics which may be relevant during overseas transportation. The guidelines are general in nature and the amount of information largely depends on availability and level of transport-related research done.

Specific information provided by manufacturers, shippers, authorities and shipping lines may differ and the user of the website may therefore wish to make further enquiries as to the most suitable guidance. In no circumstance, does the information on this website replace provisions governing the

carriage of goods as stipulated in IMO publications, Production Safety Data sheets, advice given by insurance companies, regulations by any national or international authority, etc.

However, there is no reference to the CTU Code instead under the cargo ammonium nitrate packing instructions should be according to the International Guideline for that Packing of Cargo (CTU Packing Guide).

Much of the support information related to container garage has been provided by the UK P&I Club, Gard AS and the TT Club.

## **CTU Training**

There is little information readily available on the web relating to training with respect to the CTU Code. Currently only 3 organisations are known to offer some formal training and all of these are directly related to the CTU Code:

### **Exis Technology**

Exis Technology offer 3 e-learning packages:

- Introduction to CTU Code;
- Introduction to Freight Container VGM;
- CTUpack Foundation.

## **ARCADEMY**

ARCADEMY is a set of services offered by MdA Business Communications AG, in cooperation with interspin CreaLab, Hochschule Luzern and Zurich Insurance Company Ltd.

The e-learning is geared to the contents of the CTU code. Roles (e.g. shipper, consignor, etc.) and associated legal responsibilities are explained in a simple and comprehensive way by means of animation and graphics. Practical advices and interactive exercises deepen the knowledge gained and put it into relation to work practice. The training covers the following topics:

- Responsibility for loading
- Legal requirements for the responsible persons
- Rules for packing and storage
- Forces in road, rail, or sea transport
- Calculation of securing forces
- Measures using various devices for load securing
- Documentation of the load securing
- Instructions for the consignor
- Training contents for a hands-on training

I have been unable to gather any more information about this package or its use.

### **Cordstrap**

Their training facility is located at their corporate headquarters in the Netherlands and their headquarters in the USA and offer the opportunity to participate in our Secure Cargo Training

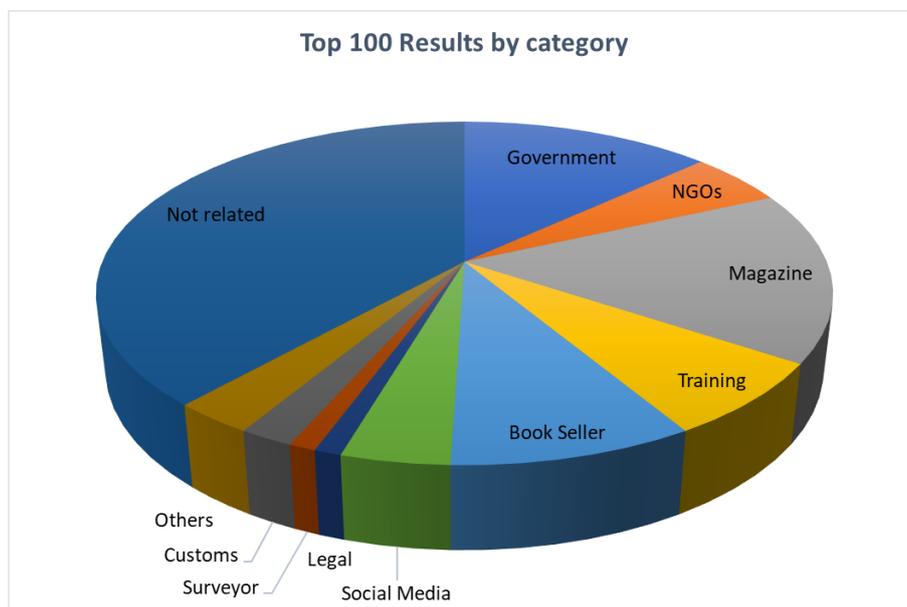
program. Together with their trainers, their participant have the opportunity to develop a training program that suits their specific requirements, to include:

- Learning the causes and consequences of cargo movement during transport
- Insight into relevant legislation and regulations, including current CTU code compliance
- Theoretical training in cargo securing and cargo calculation methods
- Intensive hands-on training using the newly acquired skills

## General web searches

### Search on “CTU Code”

A search of the web for words “CTU Code” found the following results. A total of 62 results directly related to the CTU code with the UNECE being the most frequent contributor with eight results.



A total of 16 records results were found for magazines and web-based information services with World Cargo News, The Loadstar, HFW and Port Technology each having two results. LinkedIn recorded three entries although two were identical.

The first non-governmental or NGO to be recorded was Cordstrap, who along with EXIS and eumos contributed seven lines referring to some form of training.

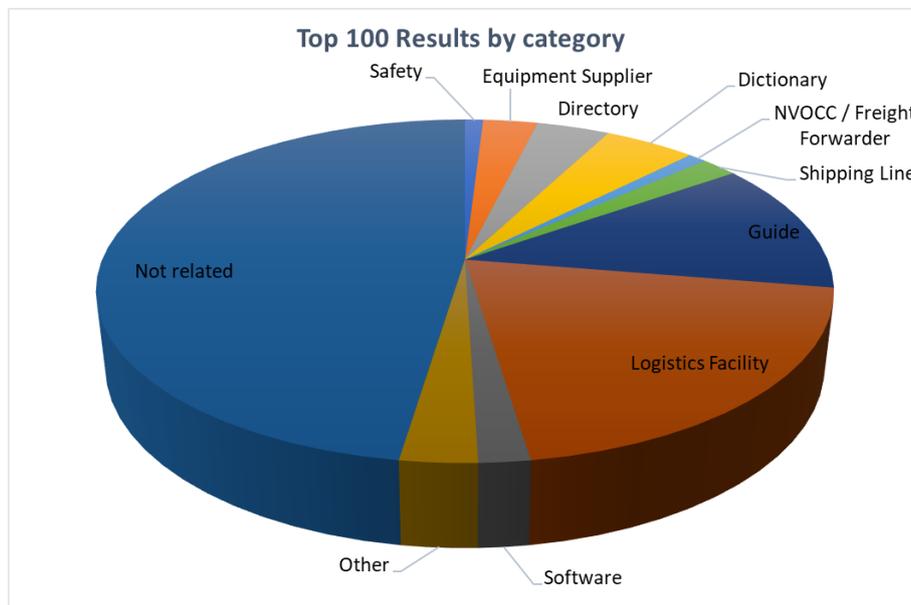
It was noticeable that seven entries were made by some form of bookseller who was either selling The Code or the Informative Material.

Three results related to the three-letter acronym “CTU” and of these one did not recognise “Cargo Transport Units”, and one stated that it was a rarely used term.

Within the search no references were found that related to the use of the CTU code by the websites owner, and a considerable proportion of the results related to publicity issued in relation to the introduction of the code or events associated with its dissemination.

### Search on “Stuffing Containers”

A web search for the words “stuffing containers” found the following results. In total 106 results were analysed which 50 were not related to packing containers. The largest single category related to logistics facilities that offered un-stuffing or stuffing facilities for containers. The 2<sup>nd</sup> highest category provided some form of a guide with 13 different entries.



Stuffing guide entries included organisations such as the World Food Program, the UK P&I club and the International Trade Centre. In general, all of these guides were produced before the CTU code was published and consequently do not include any reference to the CTU code. Stuffing guides included in this category vary from the very basic to the more substantial, however, none of them provide the same level of detail found in the CTU code.