

SUB-COMMITTEE ON DANGEROUS
GOODS, SOLID CARGOES AND
CONTAINERS
18th session
Agenda item 8

DSC 18/INF.7
9 July 2013
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REVISION OF THE GUIDELINES FOR PACKING OF CARGO TRANSPORT UNITS

Comments on the draft Code of Practice for Packing of Cargo Transport Units (CTU Code)

Note by the Secretariat

SUMMARY

Executive summary: This document contains comments and proposals of amendments to the draft Code of Practice for Packing of Cargo Transport Units, provided by the experts from Belgium, Germany and Japan

Strategic direction: 5.2

High-level action: 5.2.3

Planned output: 5.2.3.9

Action to be taken: Paragraph 4

Related documents: DSC 17/6; DSC 18/8, DSC 18/8/1 and DSC 18/INF.4

General

1 The Group of Experts for the revision of the IMO/ILO/UNECE Guidelines for Packing of Cargo Transport Units (CTUs), after holding three sessions in Geneva and working by correspondence, have developed the draft Code of Practice for Packing of Cargo Transport Units (CTU Code) as contained in the annex to document DSC 18/8.

2 The UNECE Secretariat invited the members of the Group of Experts to send their comments on the draft CTU Code, if any, with the view to consolidating and submitting them for consideration to DSC 18.

3 The comments and proposals of amendments from the experts of Belgium, Germany and Japan are reproduced in the annex.

Action requested of the Sub-Committee

4 The Sub-Committee is invited to consider comments and proposals of amendments to the draft Code of Practice for Packing of Cargo Transport Units annexed to this document.

ANNEX

COMMENTS AND PROPOSALS OF AMENDMENTS TO THE DRAFT CODE OF PRACTICE FOR PACKING OF CARGO TRANSPORT UNITS (CTU CODE)

Page numbers refer to the annex to document DSC 18/8.

Underlined text proposed for insertion
~~Strikethrough text~~ proposed for deletion

Comments from the experts of Belgium

Annex 4 "Quick lashing guide"

Table for friction factors (page 71): it was agreed that the friction factors of standard EN 12195-1:2010¹ should be used. The table provided in annex 4 is not the same as table B.1 of EN 12195-1:2010 (table B.1 is reproduced in the appendix to this document).

Annex 14 "Packing and securing cargo into CTUs"

Appendix 7 "Practical inclination test for determination of the efficiency of cargo securing arrangements" (page 302): this appendix should be deleted for the following reasons:

1. The major part of this appendix has been copied from an informative annex to a standard. The annex is informative because there was no agreement in the standardization commission to include it as a normative annex.
2. The inclination test in this appendix is not safe because all dynamic effects are neglected.
3. The inclination test in this appendix is not safe since not even a single safety factor is included. Therefore it does not correspond to the spirit nor to the calculations of EN 12195-1:2010.
4. Publications in peer reviewed journals show that an inclination test is not equivalent to the acceleration as described in this appendix.
5. The theoretical background of this appendix is a pseudo-scientific article since it is based on Newton's law for undeformable goods. Even for small deformations this law is not valid. This can be illustrated by simple videos.

¹ Load restraining on road vehicles – Safety – part 1: Calculation of securing forces.

Comments from the experts of Germany

Chapter 5 "General transport conditions"

Section 5.3 (page 16): in the table for rail transport, amend the note as follows: "The values in brackets apply to shock loads with short impacts of less than 150 milliseconds only or shorter, and only need to be used for static design of cargo securing arrangements."

Reason: the second part of the footnote as provided in the annex to DSC 18/8 was not agreed by the Group of Experts and might be misunderstood. Therefore it should be deleted.

Annexes: general comments

There are a considerable number of annexes which are partly very voluminous. Due to lack of time, only some of these annexes had been discussed and agreed upon by the Group of Experts. The majority of these annexes had not been substantially considered or even not been discussed at all by the group.

The German experts are of the opinion that following annexes should be deleted or at least considerably reduced by volume:

Annex 3 "Safe transport of containers at sea"

As mentioned in the introduction of annex 3, the content is outside of the scope of the CTU Code. Therefore, annex 3 should be deleted.

Annex 6 "CTU types"

Although it provides some useful information, this annex is very voluminous. It has to be questioned whether such in-depth information is really necessary for the packer of a CTU.

Annex 7 "Intermodal road/rail/sea load distribution"

This annex was discussed by the Group of Experts but was found very difficult to be understood. All required information on load distribution, at least in that extent as needed by a CTU packer, is already provided in annex 14, section 3. Therefore, annex 7 should be deleted.

Annex 9 "Transport of perishable cargo"

This annex is outside of the scope of the CTU Code. The information on condensation damage provided in annex 5 is considered sufficient. Annex 9 could be deleted.

Annex 15 "Manual handling"

This annex was not discussed by the Group of Experts. Its goes beyond the scope of the CTU Code as it addresses general issues of occupational safety. Annex 15 should be deleted.

Annex 17 "CTU Seals"

This annex contains very extensive information on seals. It is not considered necessary to have such excessive information in the CTU Code. It could be appropriate to delete annex 17.

Annex 18 "Fumigation"

This annex repeats information which is already provided in the IMDG Code. Furthermore, the information provided is not fully consistent with chapter 5.5 of the IMDG Code. It was agreed by the Group of Experts that the CTU Code should not repeat mandatory requirements of other legal instruments. The reasons are first to avoid redundancy and second, more important, to avoid discrepancies, as mandatory legal instruments such as the IMDG Code are more often revised than the CTU Code. With respect to the CTU Code, all necessary information on fumigation is already provided in annex 12, section 4. Therefore, annex 18 should be deleted.

Annex 19 "Testing CTUs for hazardous gases"

Information on measuring gases is already provided in annex 12, section 5. There is no need to provide redundant information in a separate annex. Therefore, annex 19 should be deleted.

Annex 2 "Information and documentation flow"

Paragraph 1.8 (page 53): the meaning of the first sentence is not clear. The wording should be improved. (The first sentence reads: "The shipper will arrange the transport of the goods and, depending on the nature of the contract between the shipper, the carriers and the consignee the insurance cover.").

Annex 4 "Quick lashing guides"

Table for friction factors (page 71): there are some values which are not consistent with the respective values in table B.1 of standard EN 12195-1:2010. The Group of Experts agreed on the values as provided in the standard. Thus, most probably this discrepancy is a typing error which requires correction as follows:

| Material combination in contact surface | Friction factor μ | |
|--|-----------------------|-------------|
| | Dry | Wet |
| Sawn timber /wooden pallet – shrink film | 0.30 | <u>0.30</u> |

Text below the table for friction factors (page 72): the text should be aligned with paragraph 2.2.2.3 of annex 14. Therefore the third sentence should read: "If the surfaces are not swept clean the maximum friction factor to be used is 0.30 or the value in the table, when this is lower if it is ~~lower shall be used~~."

Annex 11 "CTU condition checks"

Figures in section 5 "containers" should be numbered.

Annex 14 "Packing and securing cargo into CTUs"

Paragraph 2.2.2.3 (page 241): in order to use the unique term "friction factor", amend as follows:

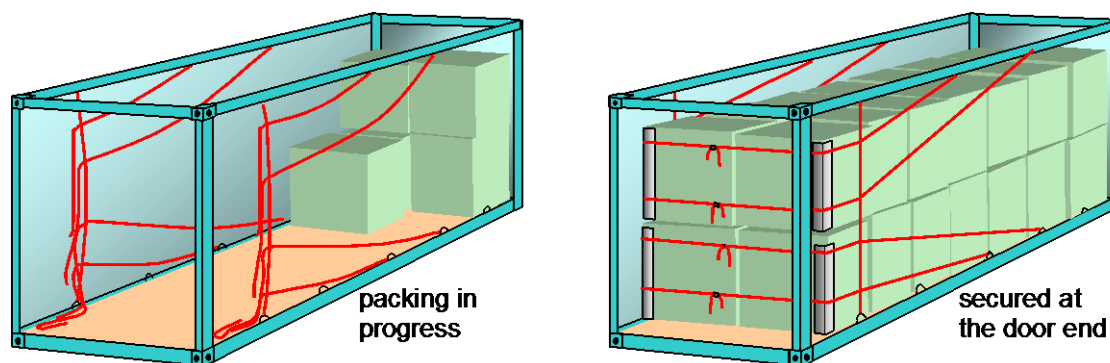
"2.2.2.3 The friction values given in appendix 3 are valid for swept clean dry or wet surfaces free from frost, ice, snow, oil and grease. When a combination of contact surfaces is missing in the table in appendix 3 or if its friction factor ~~coefficient of friction~~ can't be verified in another way, the maximum friction factor to be used in calculations is 0.3. If the surface contact is not swept clean, the maximum friction

factor to be used is 0.3 or the value in the table, when this is lower. If the surface contacts are not free from frost, ice and snow a friction factor ~~static friction coefficient~~ $\mu = 0.2$ shall be used unless the table shows a lower value. For oily and greasy surfaces or when slip sheets have been used a ~~static~~ friction factor $\mu = 0.1$ shall be used. The friction factor for a material contact can be verified by static inclination or dragging tests. A number of tests should be performed to establish the friction for a material contact (see appendix 4).".

Paragraph 2.3.4 (page 243): in the last sentence, replace "appendix 14.1" by "appendix 5".

Section 2.4 (page 245): amend the heading as follows: "Lashing materials and arrangements".

Figure 14.20 (page 250): it shows a modular system of a certain provider of lashing material which has obviously been copied from advertising material. The CTU Code should not show products of certain providers but illustrate the principle of cargo securing. Therefore, it should be replaced by the following illustration:



Paragraph 3.1.1 (page 250): amend the last sentence as follows: "It may be necessary to transfer the weight ~~mass~~ to the corner posts by supporting ~~and to support~~ the cargo on strong timber or steel beams as appropriate.".

Reason: It is the weight (the force originating from the mass) which has to be transferred into the corner posts by appropriate support.

Paragraph 3.3.3 (page 254): this paragraph requires more consideration. It could be so understood that in any case where such products are handled, intrinsically safe forklifts have to be used, as there is always a danger that a receptacle is damaged, the content is leaked and an explosive atmosphere is generated.

(The paragraph reads: "Wherever there is a risk of explosion due to the vapours, fumes or dust given off by the cargo, all electrical equipment mounted on the trucks must be sealed to ensure that they are intrinsically safe for flammable and explosives atmospheres.")

Paragraph 3.3.7 (page 254): amend the second sentence as follows: "The move of the unit ...".

Paragraph 4.1.4 (page 255): amend the first sentence as follows: "Lashings used for direct securing will inevitably elongate under external load ~~over time~~, thus permitting the package a degree of movement.".

Paragraph 5.2.3 (page 265) the last sentence reads: "When a flexitank is loaded into a general purpose ISO box container, the mass of the liquid in the flexitank should not exceed 24 tonnes or the volume should not exceed 24,000 litres whichever is the larger.".

The maximum value of 24 tonnes was not agreed by the Group of Experts. Calculations carried out by classification societies provide certain evidence that the side walls of a box container may suffer serious damage or may even fail when the liquid mass in the flexitank exceeds 50 per cent of the rated payload of the container, unless the side walls are sufficiently enforced for that purpose.

Therefore, the Group of Experts agreed on the following wording: "When a flexitank is loaded into a general purpose ISO box container, the mass of the liquid in the flexitank should not exceed a value agreed with the operator of the CTU, to prevent the container from suffering bulging damages.".

Section 5.3 (page 266): this section shows two alternatives. The Group of Experts agreed on the first option. The second option was not presented to the group and not discussed. Therefore, it is proposed to keep the first option.

Appendix 3 "Friction factors", table (page 282): there are some values which are not consistent with the respective values in table B.1 of standard EN 12195-1:2010. The Group of Experts agreed on the values as provided in the standard. Thus, most probably this discrepancy is a typing error which requires correction as follows:

| Material combination in contact surface | Dry | Wet |
|--|-----------------|-----------------|
| Sawn timber /wooden pallet against - shrink film | 0.30 | <u>0.30</u> |
| Planed wood against smooth steel - <u>stainless steel sheet</u> | <u>0.200-30</u> | <u>0.200-30</u> |

Appendix 5 "Specific packing and securing calculations" (page 286): two options are presented because the Group of Experts could not agree on one option. The German experts are in favour of option 1.

Annex 21 "Acronyms" (page 350)

The following acronyms have double meanings which could lead to misinterpretations by the reader: BB, CAF, CIA, COD, COP, DG, ETA, FAS, FIFO/FIO, IBC, ICC, IT, ITF, NOS, OCP, POD, POL, S/D, T&E.

Comments from the experts of Japan

Chapter 4 "Chains of responsibility and information"

Paragraph 4.2.4 (page 13): amend the last bullet point as follows:

"4.2.4 The shipper is responsible that:

(...)

the information concerning the consignment, ~~and~~ description of packages and the verified gross mass is transmitted to the consignee."

Chapter 11 "On completion of packing"

Paragraph 11.3.2 (page 40): amend as follows:

"11.3.2 The packer of the CTU should inform the shipper on the identification number of the CTU (container number or vehicle number as appropriate), on the gross mass of the packed cargo and where applicable the verified gross mass of the unit and on the identification number of the seal (if applicable), thus to ensure that the verified gross masses and the identification numbers of each container are included in all transport documents, such as bills of lading, way bills, consignment notes or cargo manifests, and are communicated to the carrier as early as required by the carrier."

Appendix

Table B.1 of standard EN 12195-1:2010 (Load restraining on road vehicles – Safety – part 1: Calculation of securing forces)

EN 12195-1:2010 (E)

Table B.1 — Friction factors μ of some usual goods and surfaces to be used in calculations

| Combination of materials in the contact surface ^a | Friction factor μ |
|--|---------------------------|
| Sawn wood | |
| Sawn wood – fabric base laminate/plywood | 0,45 |
| Sawn wood – grooved aluminium | 0,4 |
| Sawn wood – shrink film | 0,3 |
| Sawn wood – stainless steel sheet | 0,3 |
| Plane wood | |
| Plane wood – fabric base laminate/plywood | 0,3 |
| Plane wood – grooved aluminium | 0,25 |
| Plane wood – stainless steel sheets | 0,2 |
| Plastic pallet | |
| Plastic pallet – fabric base laminate/plywood | 0,2 |
| Plastic pallet – grooved aluminium | 0,15 |
| Plastic pallet – stainless steel sheet | 0,15 |
| Steel and metal | |
| Steel crate – fabric base laminate/plywood | 0,45 |
| Steel crate – grooved aluminium | 0,3 |
| Steel crate – stainless steel sheet | 0,2 |
| Concrete | |
| Concrete rough – sawn wood battens | 0,7 |
| Concrete smooth – sawn wood battens | 0,55 |
| anti-slip mat | |
| Rubber | 0,6 ^b |
| Other material | as certified ^c |
| ^a Surface, dry or wet but clean, free from oil, ice, grease ^b may be used with $f_{\mu} = 1,0$ for direct lashing ^c When special materials for increased friction like skid-inhibiting mats are applied, a certificate for the friction factor μ is required. | |

It has to be ensured that the used friction factors are applicable to the actual transport. If the surface contacts are not swept clean, free from frost, ice and snow a friction factor larger than $\mu = 0,2$ (for sea transport $\mu = 0,3$) shall not be used. Special precautions should be taken for oily and greasy surfaces.