



Secretariat

Distr.  
GENERAL

ST/SG/AC.10/C.3/2006/20  
7 April 2006

Original: ENGLISH

---

**COMMITTEE OF EXPERTS ON THE TRANSPORT OF  
DANGEROUS GOODS AND ON THE GLOBALLY  
HARMONIZED SYSTEM OF CLASSIFICATION  
AND LABELLING OF CHEMICALS**

Sub-Committee of Experts on the  
Transport of Dangerous Goods

Twenty-ninth session  
Geneva, 3-12 (a.m.) July 2006  
Item 4(b) of the provisional agenda

**PACKAGINGS (INCLUDING IBCS AND LARGE PACKAGINGS)**

Bottom lift test for IBCs

Transmitted by the International Confederation of Plastics Packaging Manufacturers (ICPP)  
and the International Council of Chemical Associations (ICCA)

**Proposal**

1. During the twenty-eighth session of the Sub-Committee a decision was made to amend 6.5.4.4.4. Having considered the changes made, ICPP and ICCA believe that this change could have a severely detrimental impact on the manufacture of IBCs for no measurable increase in transport safety and believes that the text should revert to the current text as set out in the 14<sup>th</sup> revised edition of the Model Regulations:

”No permanent deformation which renders the IBC, including the base pallet, if any, unsafe for transport and no loss of contents.”

*Related documents*

ST/SG/AC.10/C.3/2005/20  
ST/SG/AC.10/C.3/56  
ST/SG/AC.10/C.3/56/Add.1

Report of the IBC informal working group  
Report of the Sub-Committee of Experts on its 28<sup>th</sup> session  
Draft amendments to the UN Recommendations

## Justification

2. The incident record tabled by the expert from the United States of America during the informal working group meeting in Paris (1.5 failures of the inner receptacle per million 31HA1 IBC shipments, NONE of which were attributable to LIFTING PROBLEMS, 7 failures in total per million shipments) shows how tiny this problem is. The numbers of such incidents as a percentage of trips is very small.
3. ICPP and ICCA recognise however that there have been some incidents reported to various competent authorities but the documents showed that these have been caused by:
  - (a) Poor handling and loading (it should be noted that this issue was specifically addressed in 7.1.1.4 in the last biennium and will not come into the modal provisions until 2007 – its benefits are therefore still to be felt);
  - (b) Poor preparation by consignors (31% of the accidents reported in the United States statistics were because of improperly used fittings –tops, valves etc.);
  - (c) Manufacturing defects (stricter design type tests will not change this - rather it is matter of better enforcement by competent authorities).
4. Under 6.5.4.4.3 (Method of Testing) it is stated that the “forks shall penetrate to  $\frac{3}{4}$  of the direction of entry”. It seems inevitable that some permanent deformation can occur to any type of IBC when tested in this way. Therefore many design types of IBCs currently in use will fail the test if the requirement “observable permanent deformation” decided during the 28<sup>th</sup> session is maintained.
5. The bottom lift test, by stipulating that the forks should only be  $\frac{3}{4}$  in place, (contrary to good and safe working practice) is an extreme test intended to assess stability. Moreover the bottom lift test is the first test of the sequence and the following tests (at least stacking test, leaktightness test and hydraulic pressure test) ,when passed , clearly highlight that the IBC is still safe for transport in spite of the possible permanent deformation. Therefore the industry recognises and supports the view that the base of an IBC must be strong enough to withstand inadvertent misuse of fork trucks but considers that, provided there is no leakage; deformation should NOT be assessed as a failure of the IBC.



6. The Sub-Committee has already shown how difficult it is to reach agreement on measuring distortion. Industry has contemplated numerous options for describing acceptable or tolerable levels of distortion but all have a degree of subjectivity that make their inclusion in the regulations unwise because of likely inconsistent interpretation by test houses around the world.

#### **Consequences of the changes according to ST/SG/AC.10/C.3/56/add.1**

7. If the modification of 6.5.4.4.4 adopted in December is finally confirmed there will be serious consequences:
  - (a) Most commonly used IBCs will need to be redesigned;
  - (b) A lot of IBC design types will be effectively removed from the "Open Loop" option currently enjoyed by industries around the world. At the present time IBCs can be made at costs which are written off on the first trip, this means that they do not need to be shipped back empty to their original consignee. The new adopted requirement will mean a radical increase in manufacturing costs, to the extent that one trip will not absorb the on-cost. This will totally change many industries' methods of distribution, with a critical increase in distribution costs.

#### **Conclusion**

8. ICPP and ICCA suggest to come back on the previous requirement 6.5.4.4.4 included in the 14<sup>th</sup> revised edition:

"No permanent deformation which renders the IBC, including the pallet base, if any, unsafe for transport and no loss of contents."

9. However if there is some concern by the Sub-Committee that the “bottom lift test” should be accomplished without any “observable” permanent deformation, then Industry suggest to link it to normal handling conditions. In this case we propose the changes laid down in the annex hereto.
-

Annex**Proposed changes; 6.5.6.4, Bottom Lift Test**

If the Sub-Committee cannot agree to revert to the original wording in the 14<sup>th</sup> revised edition of the UN Recommendation, the alternative wording below is proposed. The wording adopted during the 28<sup>th</sup> session of the Sub-Committee was taken over in 6.5.6.4.4, sequence 1.

**6.5.6.4      *Bottom lift test*****6.5.6.4.1      *Applicability***

For all fibreboard and wooden IBCs, and for all types of IBC which are fitted with means of lifting from the base, as a design type test.

**6.5.6.4.2      *Preparation of the IBC for test***

The IBC shall be filled. A load shall be added and evenly distributed. The mass of the filled IBC and the load shall be 1.25 times the maximum permissible gross mass.

**6.5.6.4.3      *Method of testing***

The test shall be carried out in two sequences, on the same IBC and in the order indicated.

Sequence 1: The IBC shall be raised and lowered two times by a lift truck with the forks centrally positioned and spaced at three quarters of the dimension of the side of entry (unless the points of entry are fixed). The forks shall penetrate to the full extent in the direction of entry. The test shall be repeated from each possible direction of entry.

Sequence 2: The IBC shall be raised and lowered twice by a lift truck with the forks centrally positioned and spaced at three quarters of the dimension of the side of entry (unless the points of entry are fixed). The forks shall penetrate to three quarters of the direction of entry. The test shall be repeated from each possible direction of entry.

**6.5.6.4.4      *Criteria for passing the test***

Sequence 1: The IBC remains safe for normal conditions of transport, there is no observable permanent deformation of the IBC, including the base pallet, if any, and no loss of contents.

sequence 2      no damage which renders the IBC unsafe to be transported for salvage or for disposal and no loss of contents. In addition, the IBC shall be capable of being lifted by an appropriate means until clear of the floor for five minutes.