Committee of Experts on the Transport of Dangerous Goods and on the Globally Harmonized System of Classification and Labelling of Chemicals

3 July 2023

Sub-Committee of Experts on the Transport of Dangerous Goods

Sixty-second session
Geneva, 3-7 July 2023
Item 6 (c) of the provisional agenda
Miscellaneous proposals for amendments to the Model Regulations on the Transport of Dangerous Goods: Portable tanks

Addition to document ST/SG/AC.10/C.3/2023/29 and comments on document UN-SCETDG-62-INF21 transmitted by the International Confederation of Intermediate Bulk Container Associations (ICIBCA) and International Confederation of Plastics Packaging Manufacturers (ICPP)

Submitted by the International Dangerous Goods & Containers Association (IDGCA) experts

Introduction

1. The IDGCA prepared the official paper ST/SG/AC.10/C.3/2023/29, in which paid attention of experts that in the UN Model Regulations requirements to transport equipment for carriage of dangerous goods of 8 hazard class such that in one instance availability of bottom discharge is allowed and in another instance is not permitted. And also the UN Model Regulations do not contain a sufficient clarification for these requirements. In the IDGCA document an example is given, where in course of transport of hydrochloric acid UN 1789 in portable tanks a bottom discharge is prohibited, and for the same product for carriage in IBCs of 31HA1 type (composite IBC, rigid plastic, steel outer casing) a bottom discharge is allowed.

2. In transmitted by International Confederation of Intermediate Bulk Container Associations (ICIBCA) and the International Confederation of Plastics Packaging Manufacturers (ICPP) comments on document of IDGCA their discontent with the IDGCA was expressed and stated that transport of dangerous goods of 8 hazard class in IBCs with bottom discharge is more safe than carriage of the same good in portable tanks and just by that the possibility of use of IBCs with bottom discharge in multimodal transports is justified as opposed to portable tanks. The circumstance was accounted for that IBC in multimodal transports is placed in high capacity containers, which provide the additional protection of IBCs from the damage and cargo leakages. Given the above-mentioned the IDGCA prepared an additional rationale for its position.

Rationale

3. In the course of multimodal transports IBCs, placed in high capacity containers, usually IBC are laid double-decked. Therefore, more than 20 tons of liquid dangerous good may be carried in one cargo transport unit, e.g. in 20 foot container, taking into account the fact that one container has a capacity of 20 IBCs 1000 l each. So, amount of cargo in general cargo container and portable tank are similar in volume.

4. In view of construction features of dry cargo containers do not provide tightness and in case of product spillage, the cargo may go beyond the limits of container body. Besides, the general cargo container in multimodal transports is usually sealed and the good that is in container, is not controlled during the transport process. Also control of the cargo state with regard to the temperature conditions is impossible.

5. The argument presented in the document UN-SCETDG-62-INF21 that goods of 8 hazard class may have impact only on metal ship structure can't be accepted, since in accordance with classification of 8 hazard class goods the main hazardous property of corrosive substances is that they are capable of affect a human life and health and do damage to them (see item 2.8.1.1. in the UN Model Regulations).

6. Availability of bottom discharge in IBCs intended for carriage of 8 hazard class goods is not substantiated in the UN Model Regulations and requirements to designing, manufacturing and certification of service equipment as well as for IBCs of 31HA1 type are not specified. But a fault condition of service equipment, including bottom discharge device, may lead to a spillage of good and accident evolution. In this respect we call attention to that in certificates of competent authorities issued for the IBC type there are most commonly not data of design and testing of service equipment.

7. The document ST/SG/AC.10/C.3/2023/29 concerned the hydrochloric acid UN 1789 as an example, however, when transporting other dangerous goods in IBCs with the bottom discharge, also problems occurs in carriage in cargo transport units. At present an emergency case, associated with the transport of hydrogen peroxide UN 2014 (59-99 % aqueous solution), main hazard class 5.1, additional hazard class 8, in IBCs with bottom discharge, placed inside the high capacity containers double-decked. The experts involved in the investigation process assume that one of reasons of the cargo explosion and fire could be a damage of bottom discharge, good spillage, high temperatures, which led to fire event and explosion. Presented for this investigation certificates of competent authorities confirm that the IBCs were tested in compliance with the UN Model Regulations and had bottom discharge devices. The result of the carriage was fixed in photos attached to the document.

Proposal

8. The IDGCA thanks ICIBCA and ICPP for the comments to the official paper ST/SG/AC.10/C.3/2023/29 and ask the Sub-Committee of Experts on the Transport of Dangerous Goods to:

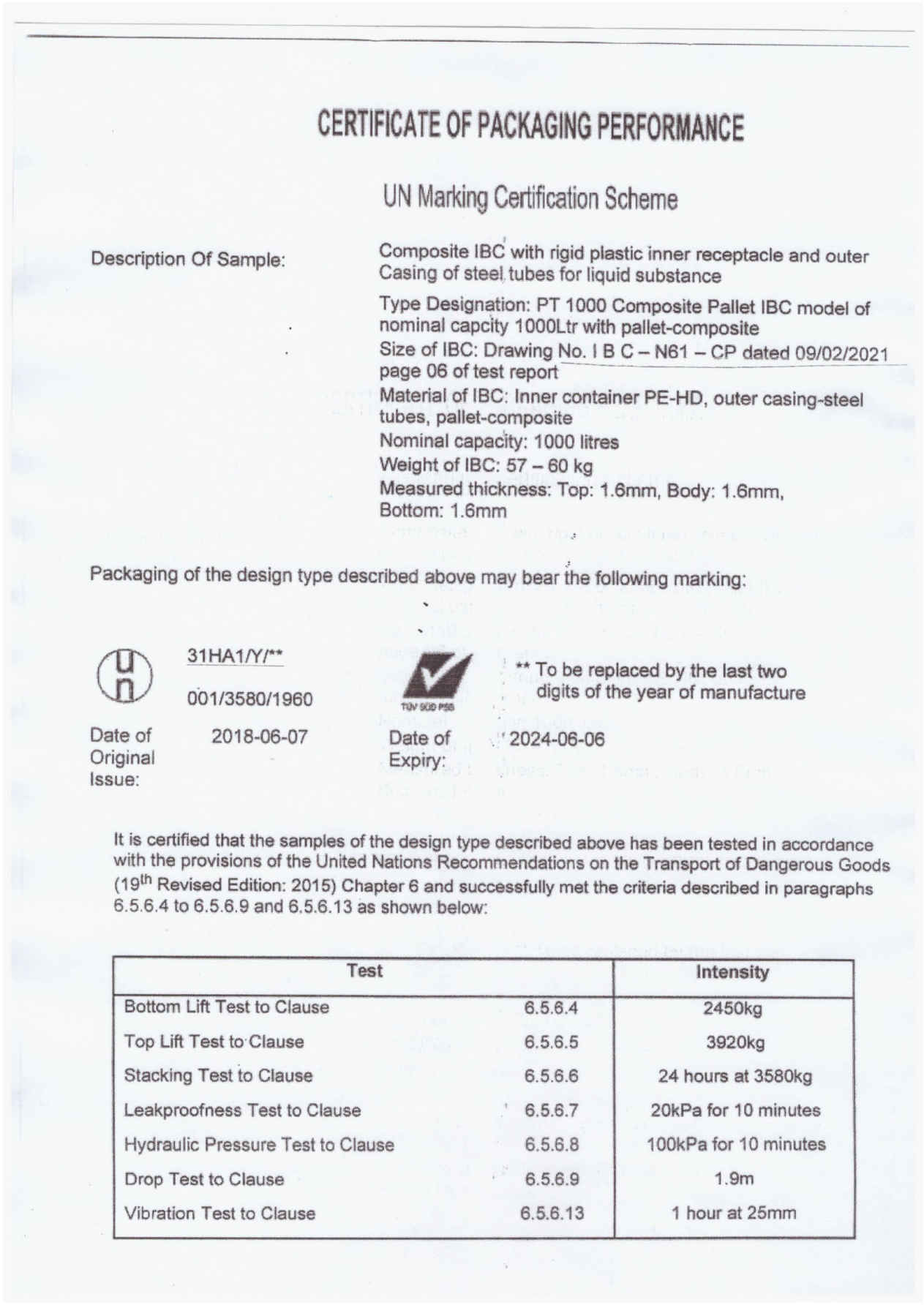
9. Consider the present information document together with the official paper ST/SG/AC.10/C.3/2023/29 and document UN-SCETDG-62-INF21.

10. Based on consideration of the documents and their discussion to take a decision on whether to make supplements to the UN Model Regulations in relation to requirements to design and testing of IBCs in the transport of certain liquid goods in cargo transport units and packaged in IBCs in multimodal transports of cargo transport units.

Annex

Figure 1.

Figure 2.



CERTIFICATE OF PACKAGING PERFORMANCE

UN Marking Certification Scheme

Description Of Sample:

Composite IBC with rigid plastic inner receptacle and outer Casing of steel tubes for liquid substance

Type Designation: PT 1000 Composite Pallet IBC model of nominal capcity 1000Ltr with pallet-composite

Size of IBC: Drawing No. I B C – N61 – CP dated 09/02/2021 page 06 of test report

Material of IBC: Inner container PE-HD, outer casing-steel tubes, pallet-composite

Nominal capacity: 1000 litres

Weight of IBC: 57 – 60 kg

Measured thickness: Top: 1.6mm, Body: 1.6mm, Bottom: 1.6mm

Packaging of the design type described above may bear the following marking:

31HA1/Y/**

001/3580/1960

** To be replaced by the last two digits of the year of manufacture

Date of Original Issue: 2018-06-07

Date of Expiry: 2024-06-06

It is certified that the samples of the design type described above has been tested in accordance with the provisions of the United Nations Recommendations on the Transport of Dangerous Goods (19th Revised Edition: 2015) Chapter 6 and successfully met the criteria described in paragraphs 6.5.6.4 to 6.5.6.9 and 6.5.6.13 as shown below:

Test		Intensity
Bottom Lift Test to Clause	6.5.6.4	2450kg
Top Lift Test to Clause	6.5.6.5	3920kg
Stacking Test to Clause	6.5.6.6	24 hours at 3580kg
Leakproofness Test to Clause	6.5.6.7	20kPa for 10 minutes
Hydraulic Pressure Test to Clause	6.5.6.8	100kPa for 10 minutes
Drop Test to Clause	6.5.6.9	1.9m
Vibration Test to Clause	6.5.6.13	1 hour at 25mm

Figure 3.

CERTIFICATE OF PACKAGING PERFORMANCE

UN Marking Certification Scheme

Description of Packaging : Composite IBC with Rigid Plastic Inner Receptacle with Composite Pallet
Type Designation: Model 1000CP of nominal capacity 1000Lit with pallet-CP
Material Of IBC: Inner Container-PE-HD;Outer casing-Steel tube; Pallet-Composite
Nominal capacity: 1000 litres
Weight of IBC: 57kg
Measured thickness: Top(3.0-3.5)mm, Body(2.0-2.5)mm, Bottom(3.0-3.5)mm

It is certified that samples of the design type described above have been tested in accordance with the provisions of the United Nations Recommendations on the Transport of Dangerous Goods (19th Revised Edition: 2015) Chapter 6, International Maritime Dangerous Goods Code (IMDG)-(2014 Edition), International Civil Aviation Organisation Code (ICAO)-(2009-2016 Edition), International Air Transport Association Code (IATA)-(50th Edition), Road Transport (ADR)-(2015 Edition) & Railway Transport (RID)-(2015 Edition) and successfully meet the criteria described in paragraphs 6.5.6.4 to 6.5.6.9 and 6.5.6.13 at the following test levels which has complied with the requirements of the scheme:

Test		Intensity
Bottom Lift Test to Clause	6.5.6.4	2530kg
Top Lift Test	6.5.6.5	2530kg
Stacking Test to Clause	6.5.6.6	24 hours at 3580kg
Leakproofness Test to Clause	6.5.6.7	20kPa for 10 minutes
Hydraulic Test to Clause	6.5.6.8	100kPa 10 minutes
Drop Test to Clause	6.5.6.9	1.9m
Vibration Test to Clause	6.5.6.13	1 hour at 25mm

THE TEST REPORT IS AN INTEGRAL PART OF THIS CERTIFICATE

Packagings of the sample specifications may bear the marking:

31HA1/Y/*
003/3580/1960/
57kg/1957kg/100kPa

** To be replaced by the last two digits of the year of manufacture

Figure 4