

**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

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**MISCELLANEOUS PROPOSALS OF AMENDMENTS TO THE MODEL REGULATIONS
ON THE TRANSPORT OF DANGEROUS GOODS**

Fumigated transport units and transport units containing dry ice as a refrigerant

Transmitted by the expert from the United Kingdom

Background

This informal document was originally developed as a formal proposal for the July Sub-Committee session. For internal reasons it was not submitted by the deadline for formal papers. The expert from the United Kingdom has subsequently developed some thoughts since then that the Sub-Committee may wish to consider and give guidance on, in order that a formal proposal may be submitted in time for the December 2007 session.

In particular, it now occurs to the expert from the United Kingdom that, with the new requirements introduced, it may no longer be necessary to include the wording shown in the fumigation warning mark, especially given the concerns that always arise in respect of comprehension and translation. It may be possible, therefore, to combine elements of the proposed fumigation and dry ice mark such that the mark shown as figure 5.5.2 below is used for both fumigation and dry ice purposes where the word 'warning' is replaced by the 'skull and crossbones' (and possibly the word 'DANGER') and the words 'VENTILATE THOROUGHLY BEFORE ENTERING' are removed. At present, it is beyond the IT capabilities of the expert from the United Kingdom to demonstrate this idea graphically in this paper in the time available!

Introduction

Fumigated transport units (UN 3359 Fumigated Unit)

1. The use of fumigated transport units is becoming more common in the transport of general freight. The use of fumigants is to ensure the nullification of infectious substances, spores and pests that may infest the freight being transported in order to avoid their further

transmission. Fumigants are used where contact insecticides will not give adequate control. The freight that is treated is, in most cases, not in itself classified as dangerous in transport. During a recent inspection of fumigated transport units carried out at the port of Felixstowe in the United Kingdom, freight as varied as furniture, fruit and funerary monuments was found to have carried in such units. However, in most cases the fumigants used will, of themselves, be classified as dangerous in transport and thus present a potential hazard to those who come into contact with them. They are thus identified in transport as UN 3359 Fumigated Unit.

2. Transport units/freight containers treated with fumigants and aerated in a proper manner should pose little risk. Nevertheless, there is the possibility of residues remaining from improper aeration procedures or absorption of gas from the treated material and this could, over time, bring fumigant gas levels back up to hazardous levels. For these reasons a warning on the transport unit/container and its documentation is essential and such requirements are currently addressed in the Model Regulations and modal provisions. This assumes, however, that there is general awareness of the provisions which are in the dangerous goods regulations among those who handle the units/containers. This may be true where the fumigated units contain freight classified as dangerous in transport, but in the vast majority of cases this will not be the situation. It is very likely, therefore, that information concerning the potential hazards posed by fumigants is not reaching those persons who handle fumigated units/containers that are being used to transport general freight and who have not received specific transport of dangerous goods training.
3. Many maritime competent authorities, trade associations and groups of shipping lines have put out notices through their web sites to warn that fumigation of transport units requires compliance with the IMDG Code, and, in particular, DSC/Circ.11. However, this is not only a maritime transport issue as these transport units/containers move to and from ports by road and rail or may move only in land transport. Workers in all of these industries need adequate warning of the potential hazards. Consignors of general freight need to know that the dangerous goods rules apply once a fumigant has been added and consignees need to understand the importance of adequate ventilation of fumigated units before allowing persons to enter/unload such transport units. Unfortunately, it is clear from the number of incidents occurring that the message is not getting through to all the people who have responsibilities in this area.

Dry ice (UN 1845 Carbon dioxide, solid)

4. Dry ice presents similar potential problems in handling for transport workers when it is used as a refrigerant for general freight. Care is needed to avoid damage to skin and tissue. Dry ice is often used for temperature sensitive consignments in all modes of transport, again primarily for substances not otherwise classified as dangerous in transport. Germany submitted a paper to IMO in 2006 regarding dry ice as a refrigerant in freight containers for fresh fish and meat (DSC11/3/3) and it would seem appropriate to apply similar warnings and conditions for the handling of this substance as for fumigants.

Dissemination of information

5. As identified above, general freight in transport that is fumigated or that needs to be refrigerated is generally not classified as dangerous goods. However, because of the nature of the fumigant or dry ice, it is appropriate that the transport of dangerous goods rules must establish the basic safety provisions for their handling. Knowledge of such provisions needs to be spread beyond the dangerous goods community to ensure that it reaches other undertakings and workers. This might be best achieved by developing self-contained freestanding provisions in the Model Regulations that can be easily copied and disseminated to any general freight consignor/consignee as a warning that special rules apply and an indication of what those rules are. They might also be highlighted to other UN Specialised Agencies, such as ILO and UNCTAD, in order that they may be drawn to the attention of other sectors of industry.
6. In considering this proposal, it was noted that occasions arise where inspection bodies such as port health authorities or customs officers may have cause to open transport units for inspection purposes, subsequently closing them and allowing the transport unit to continue on its journey. Where a warning sign has been affixed to the transport unit across the two doors of a transport unit, the warning sign may be damaged when the doors are opened to the point where vital information is lost. It is proposed, therefore, to introduce a requirement not to place warning signs across the divide between transport unit doors. Equally when being vented or unloaded, if the warning sign is affixed only to one door, personnel approaching the transport unit from another direction may not be aware of the presence of the warning sign. One way of avoiding this situation is to require that the warning sign is placed on both opening doors of the transport unit.
7. As previously noted in the last biennium by the expert of the United Kingdom, Chapter 5.5 of the Model Regulations contain only miscellaneous information covering special provisions for consignment procedures. These deal with just two issues – infectious substances in 5.5.1 and documentation and identification of fumigated units in 5.5.2.
 - The text concerning infectious substances relates to classification and is essentially a repeat of the provisions of 2.6.3.6.1. It could thus be entirely deleted.
 - The fumigated unit text relates to documentation, marking and placarding and might be more systematically presented.
8. The expert from the United Kingdom therefore proposes that the Sub-committee should now take the opportunity to review these provisions in order that Chapter 5.5 can be used specifically for information related to the safe handling of dry ice refrigerated or fumigated transport units in a form readily understandable by, and available to, the non-dangerous goods community.

Proposal and consequential changes

9. Delete the whole of the existing Chapter 5.5. Insert a new Chapter 5.5 as follows:

“CHAPTER 5.5

**SPECIAL PROVISIONS APPLICABLE TO FUMIGATED TRANSPORT UNITS (UN3359) AND
TRANSPORT UNITS CONTAINING DRY ICE (UN1845) AS A REFRIGERANT**

5.5.1 General

5.5.1.1 Fumigated transport units and transport units containing dry ice as a refrigerant shall comply with the provisions of this chapter.

NOTE: Such units may contain general freight and may not necessarily contain goods classified as dangerous in transport.

5.5.2 Marking

5.5.2.1 *Display of UN numbers*

5.5.2.1.1 The application of UN numbers to transport units when under fumigation or when containing dry ice as a refrigerant is not required unless they contain other dangerous substances, whereupon the provisions of Chapter 5.3 shall apply.

5.5.2.2 *Fumigated units*

5.5.2.2.1 A warning mark as specified in 5.5.2.2.3 shall be placed on each door of a fumigated unit in a location where it will be easily seen by persons attempting to enter the interior of the unit.

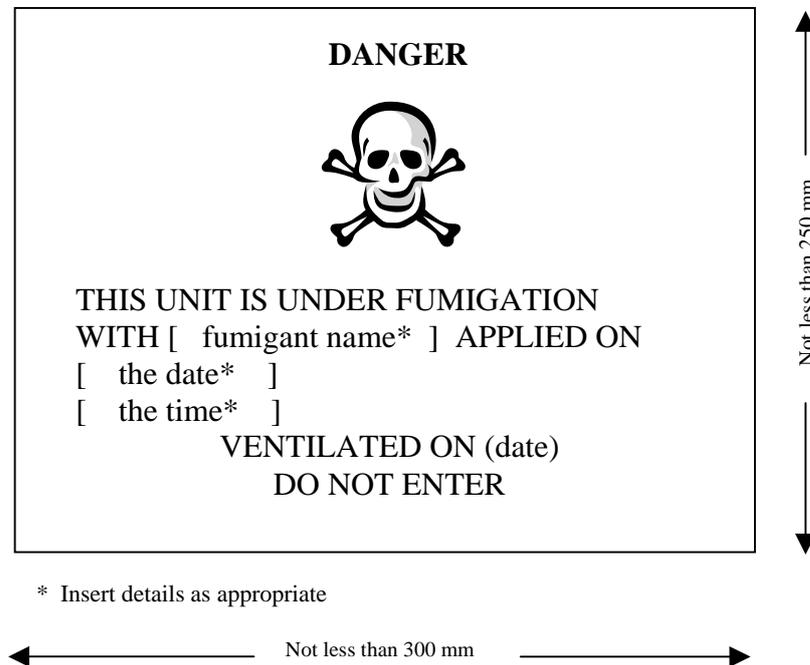
5.5.2.2.2 The marking, as required by this paragraph, shall remain on the unit until the following provisions are met:

(a) The fumigated unit has been ventilated to remove harmful concentrations of fumigant gas:
and

(b) The fumigated goods or materials have been unloaded.

5.5.2.2.3 The fumigation warning mark shall be rectangular and shall not be less than 300 mm wide and 250 mm high. The markings shall be black print on a white background with lettering not less than 25 mm high. An illustration of this sign is given in Figure 5.5.1

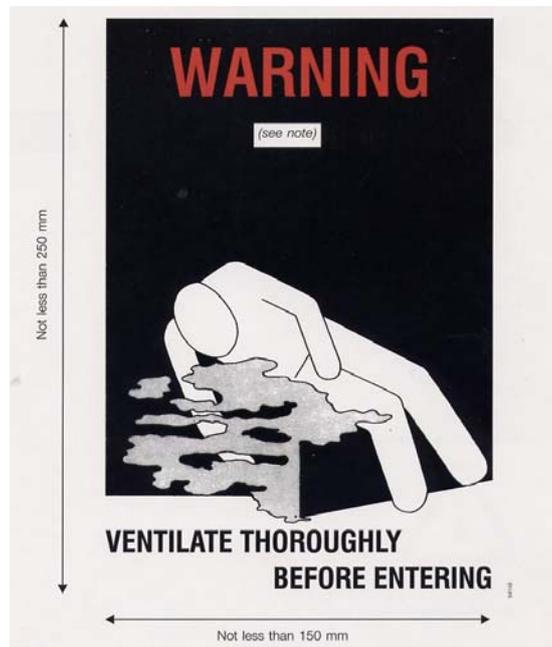
Figure 5.5.1: Fumigation warning mark



5.5.2.3 *Dry ice (UN1845) used as a refrigerant in a transport unit*

5.5.2.3.1 A warning mark as specified in 5.5.2.3.2 shall be placed on each door of a transport unit containing dry ice in a location where it will be easily seen by persons attempting to enter the interior of the unit. The transport unit shall be marked “CO₂ SOLID (DRY ICE)” in a white box adjacent to the warning sign.

5.5.2.3.2 The dry ice warning mark shall be rectangular and shall not be less than 300 mm wide and 250 mm high. The markings shall be red and black print on a white background with lettering not less than 25 mm high. An illustration of this sign is given in Figure 5.5.2.

Figure 5.5.2 Warning mark for dry ice (or other expendable refrigerant used for the cooling process)

5.5.2.4 *Dry ice (UN1845) used as a refrigerant in individual packages*

5.5.2.4.1 Packages shall be marked “WARNING - CO₂ SOLID (DRY ICE)” and shall meet the provisions of 5.2.1.2.

5.5.3 **Placarding**

5.5.3.1 Class 9 placards shall not be affixed to a fumigated unit or to a transport unit containing dry ice only for refrigerant purposes except as required for other class 9 substances or articles packed therein.

5.5.4 **Documentation**

5.5.4.1 Transport documents associated with the transport of units that have been fumigated or that contain dry ice as a refrigerant shall include the following requirements:

- (a) The UN number preceded by the letters “UN”;
- (b) The proper shipping name;
- (c) The hazard class.

For example: UN 3359 Fumigated Transport Unit, 9 or UN 1845 Carbon Dioxide, Solid (Dry Ice), 9.

5.5.4.2 Transport documents associated with the transport of units that have been fumigated shall show the date of fumigation and the type and amount of the fumigant used. In addition, instructions for disposal of any residual fumigant including fumigation devices (if used) shall be provided.”