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**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****Forty-fifth session**

Geneva, 23 June- 2 July 2014

Item 6 (b) of the provisional agenda

**Transport of gases: miscellaneous****Proposal to add a special provision for HYDROGEN,  
REFRIGERATED LIQUID (UN 1966) and HELIUM,  
REFRIGERATED LIQUID UN 1963****Transmitted by the European Industrial Gases Association (EIGA)<sup>1</sup>****Background**

1. Certain types of portable tanks, and specifically those that are used to transport Hydrogen, refrigerated liquid (UN 1966) and Helium, refrigerated liquid (UN 1963), have a special type of insulation system to cope with the low temperatures of these products which are at below minus 250°C.
2. The insulation system consists of a number of elements, one of which is a “nitrogen shield”. This consists of a quantity of liquid nitrogen typically less than 1000 kg which is held in a container that vents product to atmosphere in a controlled manner. This is an integral part of the design transport unit. This liquid nitrogen passes slowly, by convection, through a heat exchanger element near the inner vessel that contains the liquid helium or hydrogen. During transport, this liquid nitrogen is slowly converted into a gas which improves the overall efficiency of the insulation system and extends the holding time of the portable tank. This permits holding times of 30 days to be achieved which is required for marine transport.

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<sup>1</sup> In accordance with the programme of work of the Sub-Committee for 2013-2014 approved by the Committee at its sixth session (refer to ST/SG/AC.10/C.3/84, para. 86 and ST/SG/AC.10/40, para. 14).

3. The nitrogen gas is vented through its own vent system on the portable tank, at a very low flow rate of typically 0.4 m<sup>3</sup> / hour.
4. The liquid nitrogen is not being transported as such but is being 'used' during the transport operation to ensure the insulation efficiency, maintains the holding time of the portable tank and prevents premature opening of the product safety devices.
5. The quantity of liquid nitrogen is not indicated on the transport document nor is the container marked to indicate liquid nitrogen is being carried and used.
6. The release of the nitrogen gas does not provide a safety issue, for marine transport where the stowage conditions required for the release of product from the containers safety system is more onerous than that from the nitrogen shield.
7. It is therefore proposed to add a special provision for Hydrogen, refrigerated liquid (UN 1966) and Helium, refrigerated liquid (UN 1963) that will indicate the presence of liquid nitrogen.

## **Proposal**

8. In Chapter 3.3, Add a new special provision XXX, to read as follows.  
"XXX During carriage the portable tank may contain nitrogen, refrigerated liquid (UN 1977). This is required to ensure the efficient operation of the insulation system during transport and maintain the holding time. The nitrogen vents to atmosphere as a gas. There is no requirement to indicate the presence of the nitrogen on the transport document or mark the portable tank."
9. In the Dangerous Goods List, add "XXX" in column (6) against UN Nos. 1966 and 1963.

## **Safety implications**

10. None foreseen
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