

**OTIF**



**ORGANISATION INTERGOUVERNEMENTALE POUR  
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**ZWISCHENSTAATLICHE ORGANISATION FÜR DEN  
INTERNATIONALEN EISENBAHNVERKEHR**

**INTERGOVERNMENTAL ORGANISATION FOR INTER-  
NATIONAL CARRIAGE BY RAIL**

**INF. 42**

14 March 2014

Original: German

**RID/ADR/ADN**

Joint Meeting of the RID Committee of Experts and the  
Working Party on the Transport of Dangerous Goods  
(Berne, 17 – 21 March 2014)

**Item 5 (b) of the agenda: Proposals for amendments to RID/ADR/ADN – New proposals**

**Acetylene cylinders without fusible plugs for non-UN pressure receptacles**

**Transmitted by Germany**

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**Background**

1. For acetylene cylinders in the scope of section 6.2.3 and 6.2.4 of ADR there is a reference to EN 1800 "Transportable gas cylinders – Acetylene cylinders – Basic requirements and type testing" contained in the Table in sub-section 6.2.4.1. This standard applies only to acetylene cylinders without fusible plugs.
2. The reason that acetylene cylinders with fusible plugs were not covered in EN 1800 is that they may very well have disadvantageous effects which make such cylinders less safe in case an acetylene decomposition is initiated within the cylinder. Normally it should be the function of the porous material to prevent spreading and propagation of an acetylene decomposition in the acetylene cylinder and to finally stop it. However, if the fusible plug melts in case of such an incident, acetylene is vented through the opening of the fusible plug. This results in transport of acetylene in the cylinder to the opening and thereby the acetylene decomposition and also local heating of the cylinder shell in that area is accelerated. This counteracts and even impedes the original and foremost function of the porous material to stop an acetylene decomposition within the cylinder. Furthermore, the opening of the fusible plug might very well become blocked again after a while by the decomposition products and parts of the porous

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material which then results in a quite advanced acetylene decomposition within a cylinder which now will quickly increase in temperature and pressure as well. The conclusion is that the purpose of the porous material to stop an acetylene decomposition is fulfilled as reliable as possible if the cylinder is not opened, i.e. no fusible plug is contained.

3. In the meantime EN 1800 has been replaced by an international standard EN ISO 3807:2013 "Gas cylinders – Acetylene cylinders – Basic requirements and type testing". This standard is foreseen to be referenced in the Table in sub-section 6.2.4.1 until further notice. This is proposed in the informal document with the "Report of the Standards Working Group" and clearly supported.
4. ISO 3807 combines the type testing requirements of the former standards ISO 3807-1 which was for acetylene cylinders without fusible plugs and ISO 3807-2 which was for cylinders with fusible plugs because these mainly are the same. Those requirements that are specific for either cylinders without or with fusible plugs are clearly pointed out in the standard and are contained in separate Annexes. It therefore could be decided by a jurisdiction which refers to EN ISO 3807:2013 whether it wants to allow only cylinder without fusible plugs or with fusible plugs or whether both may be used.
5. In order to maintain the safety level that was ensured by EN 1800 an according information that only acetylene cylinders without fusible plugs may be used must now be added to the sections dealing with non-UN pressure receptacles of the ADR.
6. This proposal of the Standards Working group (INF.21) contains a note in column 4 which reads: "Until further notice with the exception of cylinders equipped with fusible plugs" which apparently is aiming at the above-mentioned intention to maintain the level of protection. However, the placement of this information is very unfortunate and not unambiguous because column 4 is only foreseen for information as to when a standard is to be applied.

### Proposal

7. For the reasons stated above, it is proposed to add a new sub-section 6.2.3.1.5 as follows:  
  
"6.2.3.1.5 For acetylene cylinders only cylinders without fusible plugs shall be used."
8. In the table in sub-section 6.2.4.1 the new line for EN ISO 3807:2013 in column 4 then needs to read "Until further notice" only.

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