

Economic Commission for Europe

Inland Transport Committee

Working Party on the Transport of Dangerous Goods

Ninety-second session

Geneva, 8–10 May 2012

Item 6(a) of the provisional agenda

24 April 2012

**Proposals for amendments to Annexes A and B of ADR:
pending issues**

Report on the meeting of the Ad Hoc Group “Carriage of UN 0331 in tanks”

Transmitted by the Government of Germany

Background document: ECE/TRANS/WP.15/2012/5 (Germany)

1. As requested by WP.15 at its 91st session, Germany organised an informal working meeting to examine the issues raised at that session.
2. The meeting of the Ad Hoc Group was held on 1 and 2 February 2012 in Langelsheim, Germany, on the premises of MSW Chemie GmbH and chaired by Mr Manfred Weiner, Germany, Federal Ministry of Transport, Building and Urban Development and head of delegation to WP.15.

Further participants included:

Mr Helmut Rein, Federal Ministry of Transport, Building and Urban Development, head of the Transport of Dangerous Goods Division

Mr Frank Kliebold, BAM Federal Institute for Materials Research and Testing, Germany, as an expert on explosives

Mr Ingo Döring, BAM Federal Institute for Materials Research and Testing, Germany, member of the German WP.15 delegation

Dr Michael Pöttsch, BAM Federal Institute for Materials Research and Testing, Germany, as an expert for tank technology

Ms Seija Miettinen-Bellevergue, Ministry of Transport and Communications, Finland, as the head of delegation to WP.15

Mr Evan Bale, Explosives Inspectorate of the Health and Safety Executive, United Kingdom, as an expert on explosives

Mr Markus Liebermann, MSW-Chemie GmbH, Germany, as an explosives production manager

Written comments by the Swedish and Norwegian delegations were considered in the talks.

3. First of all, the participants were informed in general terms about the development, production methods and use of explosives of UN No. 0331 (customarily called ANFO):

For health and safety reasons it became necessary to develop, for the use in potash and salt mines where the atmosphere is dry, explosives with a particularly low release of noxious substances into the circulating air underground. These optimised explosives have the same blasting properties but are more sensitive to external influences such as friction, vibration and atmospheric humidity than the ones usually utilized. This results in special requirements for handling and carriage to the intended location. In particular, the product must not become damp throughout the transport chain and the prills must not be mechanically destroyed by friction. The gentle carriage in tanks is particularly suitable for this purpose as the product can be carried largely free of negative effects. Otherwise, the effectiveness of the explosive would be impaired.

4. In a second step, the classification of the explosive as a dangerous good of class 1.5 was explained. Within this framework, a test blast was performed at the test facility of the host company in order to demonstrate the blast effect, explain the test setup, and illustrate the company's quality assurance measures.

The German experts from the Federal Institute for Materials Research and Testing provided detailed information on the tests they carried out in accordance with the Manual of Tests and Criteria. These tests demonstrated that due to its low density the featured product should be classified as UN 0331 and that it is suitable for transport in (portable) tanks under special provision TP 32. What is remarkable is that these explosives can be initiated solely by means of a fuse only when they are embedded in a drill hole of not more than 40 mm.

5. Thereafter, the circumstances of carriage by road were discussed. A vehicle which may be used for carriage of such substances was inspected.

The Ad Hoc Group believes that the carriage of explosives or of their intermediate products in MEMUs as provided for in ADR is another application and not comparable. Here, an explosive intended for use on-site in particular in quarries is prepared at the point of use. Storbility and transportability are no design criteria as this explosive is always intended for immediate use.

6. The use of portable tanks (UN tanks) as provided for in RID/ADR has considerable disadvantages when it comes to the carriage of ANFO in this particular case. Such portable tanks shall be made of steel or aluminium, in the latter case, however, with an inorganic insulation and a steel jacket. In case of the explosives at issue, this results in an unwanted or unnecessarily heavy insulation/confinement which should be avoided for reasons of safety.

The Group was of the opinion that a particular advantage offered by the use of non-insulated ADR tanks made of aluminium alloys was the low wall thickness of these tanks which allows for discharge by means of compressed air of a working pressure of up to 2 bar while also providing the least possible confinement (insulation).

7. Moreover, possible implications of accidents involving road vehicles were addressed. The following issues were considered: fire around the tank, impacts on the environment in the event of loss of product, with particular focus on fire-fighting by fire brigades and in the event of combination with snow, as well as the possibility of a ground bombardment of the vehicle e.g. in the event of a terrorist attack.

In the opinion of the Ad Hoc Group, all conceivable possibilities proved to be safe. In the cases under consideration, UN 0331 does not act differently than ammonium nitrate based fertilizer. When dissolved in water, the blasting properties are completely lost.

8. The cap of 16 tons per transport unit was confirmed based on the current information situation.

9. The Ad Hoc Group concluded that the carriage of explosives of class 1.5D under UN No. 0331 in ADR tanks made of aluminium alloys on road vehicles was safe.

10. Nevertheless, the wish to involve the respective state affected by the carriage of UN 0331 in tank vehicles was also discussed. This concern was considered to be legitimate and is suggested to be met by having the competent authorities of every ADR Contracting Party affected by the respective transport operation explicitly establish the suitability of the product for carriage in tanks by means of a multilateral approval.
