

**COMMITTEE OF EXPERTS ON THE TRANSPORT OF DANGEROUS GOODS**

**(21<sup>ST</sup> Session, December, 2000)  
Agenda Item 2(b)**

**Proposed Amendments to ST/SG/1C10/2000/20  
Classification of Ammonium Nitrate Emulsions**

**Transmitted by the Expert of Spain**

**1. Background**

An Informal Working Group on the classification of Ammonium Nitrate Emulsions (ANEs) met in Norway in October '99 and produced a report recommending change to the UN test scheme to enable proper classification of these materials (ST/SG/AD.10/2000/21).

The Group reconvened in Geneva in July '00 to consider the document UN/SCETDG/18/INF.47 from the United Kingdom and other conference room papers from Canada and France commenting on the report and presenting some test results.

The Working Group decided that a revised proposal should be presented to the Committee of Experts in December and to produce test results bearing on their validity.

**2. Tests carried out in Spain**

Some tests of ANEs have been carried out in Spain during November with the typical formulation as follows:

“60-85% Ammonium Nitrate, 5-30% Water, 0-8% Oil, 0-4% Emulsifiers and 0-10% soluble flame suppressants and trace additives”

In the same way, one ANE with a contents of oil up to 15% has been tested.

These tests consisted in determining the initiation sensitiveness for an ANE mass of 50 kg. inside an open drum of tinplate with a diameter of 380 mm, in such way that the product is not confined.

The mass was initiated with a booster of 450 grs. of pentolite (60% PETN and 40% TNT), placed in the centre of the circle formed by the surface of the ANE mass tested and sunk down to a deepness equal to the height of the booster.

In order to differentiate the effect produced by the explosion of the booster initiator from the effect of the eventual blasting of the ANE, some steel plates were used as witnesses and it was carried out a previous blank test with an Inert ANE with the following composition: 60% Sodium Chloride, 35,4% Water, 1,4% Guar Gum and 3% Glycol.

The results of these tests for 8 carried out samples were as follows:

Three (3) samples detonated completely, without remaining of product not detonated; two (2) samples detonated, but there were remaining of ANEs not detonated on the witness plates and on the ground; the other three(3) did not explode (between these three there was the one with the biggest contents of oil).

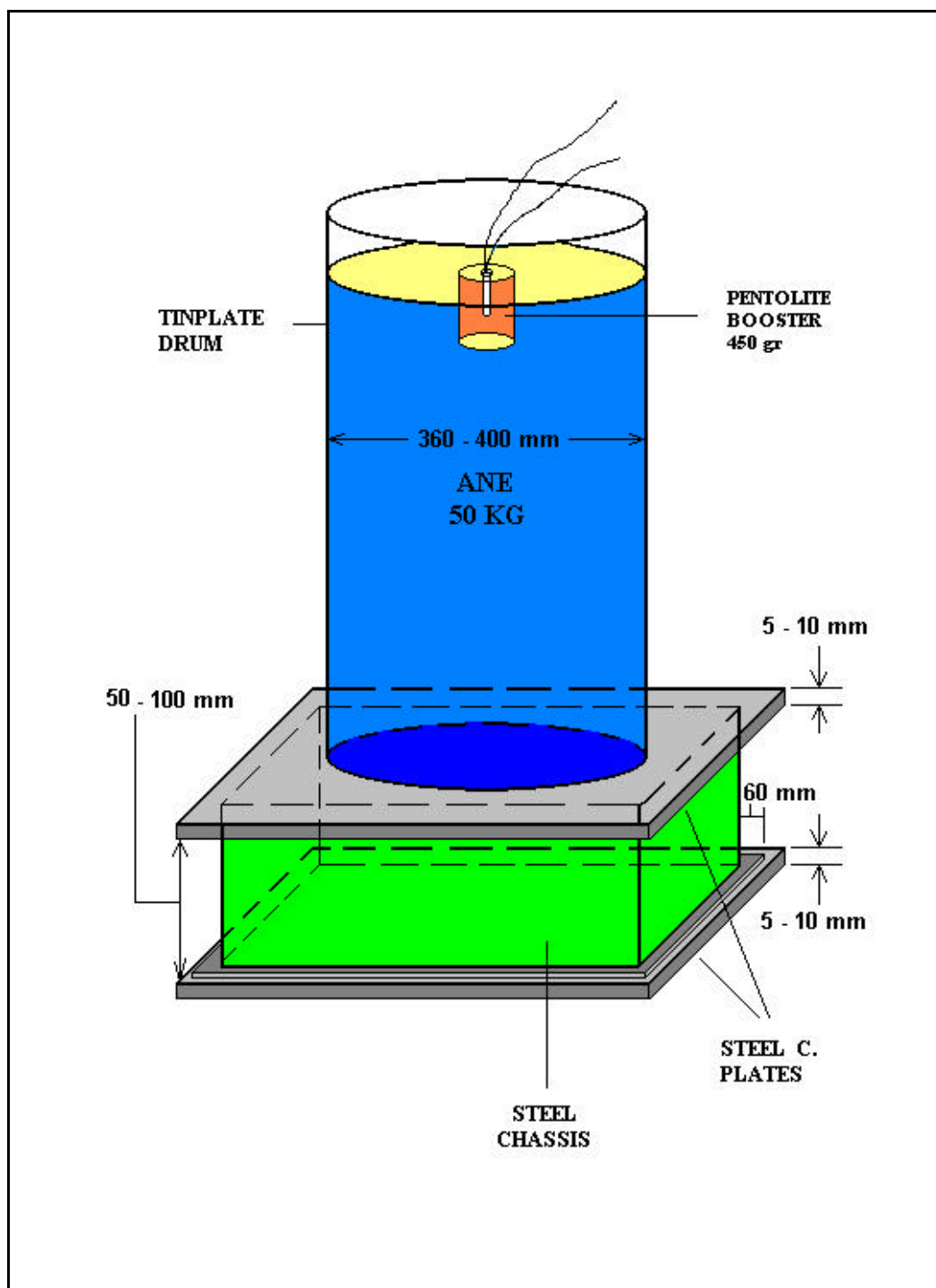
The detailed scheme of the test execution is included in the Annex I.

### **3. Proposal**

Assuming that this test allows to differentiate whether an ANE explodes, the proposal is to include the above mentioned test for the classification of ANE in relation with the following criteria:

- They will be considered as ANE of the class 1.5 when subject three times to the before mentioned test, a total detonation of the tested mass is produced.
- They will be considered as ANE of the class 5.1, when subject three times to the before mentioned test:
  - o They do not produce detonation, therefore, the effect on the witness plates is equal to the blank test.
  - o Assuming that there are bigger effects on the witness plates than in the blank test, there are remaining of ANE on the witness plates and/or in the area surrounding the testing place.

## **ANNEX 1. DETAILED SCHEME OF THE TEST EXECUTION**



## 1. GENERAL VIEW



## 2. BOOSTER POSITION





### 3 BLANK TEST



### 4. NO DETONATED ANE





**5. BIGGER EFFECTS THAN BLANK TEST (REMANINING ANE)**



**6. TOTAL DETONATED ANE (NO REMAINING PRODUCT)**



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