

# UN/SCETDG/20/INF.21

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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  
(Twentieth session, 3-12 December 2001, agenda item 8 (b))

### EXPLOSIVES, SELF-REACTIVE SUBSTANCES AND ORGANIC PEROXIDES

#### Classification of ammonium nitrate emulsions, suspensions and gels

#### Test Results of ANE

#### Transmitted by the Expert from Japan

### 1. Background

During the nineteenth session of the Sub-Committee, July 2001, the test method for assigning substances to the new entry for Ammonium Nitrate Emulsions, suspensions or gels (ANEs)(UN3375) was considered. Then draft test series 8(a), 8(b) and 8(c) were adopted, but test series 8(d) is needed to be discussed further (ST/SG/AC.10/C.3/38, paragraph 82).

According to the draft test series 8(a), 8(b) and 8(c), Japan has performed these test for some ANEs, and the results of the tests are attached as Annex.

### 2. Results and comments

#### *Test 8(a) : Thermal Stability Test*

The results are presented in the Table1 of the Annex. All the emulsions have been proved to be thermally stable, even at 20°C above the maximum transport temperature, 60°C.

#### *Test 8(b) : ANE Gap Test*

The results given in the Table2 of the Annex show that the test is capable of distinguishing between sensitized and unsensitized products just like the results of US/SCETDG/19/INF.19.

#### *Test 8(c) : Koenen Test*

The results are presented in the Table3 of the Annex. The results of the tests are 'minus'.

### 3. Proposal

It is propose that the above test results showed in the Annex add to "Examples of results" of draft test series 8(a), 8(b) and 8(c) in the Manual of Tests and Criteria (ST/SG/AC.10/C.3/38/Add.1, Annex2).

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**Annex**

**Table 1 Test 8(a) : Thermal Stability Test**

Substances	Sample mass (g)	Test T (°C)	Result	Comments
<b>ANE-J1</b> Ammonium nitrate 80%, Water 13%, Fuel/emulsifier 7%	613	80	-	Mass loss 0.1%
<b>ANE-J2</b> Ammonium nitrate 76%, Water 17%, Fuel/emulsifier 7%	605	80	-	Mass loss 0.3%
<b>ANE-J3</b> Ammonium nitrate 68%, Sodium nitrate 9%, Sodium perchlorate 5%, Water 11%, Fuel/emulsifier 7%	583	80	-	Mass loss 0.3%
<b>ANE-J4</b> Ammonium nitrate 75%, Water 11%, Fuel/emulsifier 14%	602	80	-	Mass loss 0.1%

**Table 2 Test 8(b) : ANE Gap Test**

Substances	Density g/cm <sup>3</sup>	Gap mm	Result	Comments
<b>ANE-J1</b> Ammonium nitrate 80%, Water 13%, Fuel/emulsifier 7%	1.39	70	-	Tube fragmented. Plate indented.
<b>ANE-J2</b> Ammonium nitrate 76%, Water 17%, Fuel/emulsifier 7%	1.42	70	-	Tube fragmented. Plate indented. VOD 2.3 km/s
<b>ANE-J3</b> Ammonium nitrate 68%, Sodium nitrate 9%, Sodium perchlorate 5%, Water 11%, Fuel/emulsifier 7%	1.41	70	-	Tube fragmented. Plate indented. VOD 2.7 km/s
<b>ANE-J4</b> Ammonium nitrate 75%, Water 11%, Fuel/emulsifier 14%	1.40	70	-	Tube fragmented. Plate indented. VOD 2.6 km/s
<b>ANE-J5</b> (sensitized by microballoons) Ammonium nitrate 71%, Sodium nitrate 5%, Water 18%, Fuel/emulsifier 6%	1.20	70	+	Tube fragmented. Plate performed. VOD 5.7 km/s
<b>ANE-J6</b> (sensitized by microballoons) Ammonium nitrate 80%, Water 13%, Fuel/emulsifier 7%	1.26	70	+	Tube fragmented. Plate performed. VOD 6.3 km/s

**Table 3 Test 8(c) : Koenen Test**

Substances	Result	Comments
<b>ANE-J1</b> Ammonium nitrate 80%, Water 13%, Fuel/emulsifier 7%	-	Effect type "O"
<b>ANE-J2</b> Ammonium nitrate 76%, Water 17%, Fuel/emulsifier 7%	-	Effect type "O"
<b>ANE-J3</b> Ammonium nitrate 68%, Sodium nitrate 9%, Sodium perchlorate 5%, Water 11%, Fuel/emulsifier 7%	-	Effect type "A"
<b>ANE-J4</b> Ammonium nitrate 75%, Water 11%, Fuel/emulsifier 14%	-	Effect type "A"