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Committee of Experts on the Transport of Dangerous Goods (Twenty-first session, Geneva, 4-13 December 2000, agenda item 2(b))

WORK OF THE SUB-COMMITTEE OF EXPERTS ON THE TRANSPORT OF DANGEROUS GOODS

German comments on Document ST/SG/AC.10/2000/20

Germany was participating the meetings of the working group on Classification of Ammonium Nitrate Emulsions, Intermediate for Blasting Explosives, in Engene, Norway in 1999 and in Geneva at the meeting of the Sub-Committee in July 2000.

Germany sees the necessity for regulations for the transport of such emulsions in big amounts, especially in tanks.

Looking at the packing instruction for Ammonium Nitrate Emulsions Germany does not think P503 in complete version to be suitable.

Single packagings listed there are also fibreboard drums (1G) and plywood drums (1D) fitted with inner liners with a maximum net mass of 200 kg. We are not sure that these two single packagings are suitable for emulsions containing up to 30 % water. We would like to have removed these two single packagings from P503 for the new entry for Ammonium Nitrate Emulsions.

Proposal:

For packing instruction P503 insert a special packing provision PPXX: For UN 3XXX only metal drums are authorized as single packagings.

Some remarks about the test series 8 are to be made.

Test 8(a): Thermal stability test for ammonium nitrate emulsions

Discussing the tests to be performed for such substances determining the thermal stability at first a test was proposed subjecting the substance to a temperature of 75 °C for 48 h following 3(c) of the Test Manual.

This test was consisting of an uninstrumented test to be performed at first and an instrumented test to be performed if the first test gives a positive result. The tests are done in a heat oven. Because of the possibility of an explosion this test has to be performed in a secure area, e.g. in a bunker.

Instrumentation is to measure the temperature using thermocouples.

The expert from UK suggested to use a kind of Dewar test to simulate the situation of the substance in a tank having a limited heat flow in the case of an exothermic decomposition.

Such a test also was recommended to be performed in a bunker because of a possible explosion. The 75 °C test in the meeting at Geneva was replaced by a Dewar test following H4 of the Test Manual then.

The installation of a Dewar test in test series 8 is supported by Germany.

To use the result of this method for transport in tanks the expert from BAM thinks it to be necessary to perform the test at 25 °C above the highest transport temperature.

There were performed Dewar tests with two ANEs

- A) having 75 % inorganic nitrates, 16 % water and 9 % oil and emulsifier
- B) having 77 % inorganic nitrates, 16 % water and 7 % oil and emulsifier.

The highest transport temperature (as filled into the tank) for both ANEs under test is $60 \,^{\circ}$ C. So the test was done at $85 \,^{\circ}$ C.

Test results:

ANE A no rise in temperature

ANE B no rise in temperature

Proposed amendments in the text of test 8(a):

The table in

18.4.1.5 Examples of results

should get another column headed "test temperature".

For the purpose of filling the table, in 18.4.1.4.1 at the beginning of the sentence should be inserted: "The result is considered "-" ".

Test 8 (b): Ammonium Nitrate Emulsion Gap Test

This shock test to determine sensitivity to intense shock was performed with ANE B and with emulsion explosive produced by sensitising it by mixing in micro glass bubbles.

Test results:

70 mm gap

Sensitised ANE B + ANE B -

Germany supports to have this test in test series 8.

Test 8(c): Koenen test

This test developed by Germany was performed with the two ANEs.

Test results:

ANE A

ANE B

Germany supports to have this test in test series 8.

Test 8 (d): USA vented pipe test

This test has not been performed in Germany. Nevertheless Germany sees the necessity of a test simulating ANE in bigger amounts under confined vented conditions in an external fire.

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