



**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

Fifty-fourth session

Geneva, 26 November-4 December 2018

Item 2 (a) of the provisional agenda

**Recommendations made by the Sub-Committee on its fifty-first,
fifty-second and fifty-third sessions and pending issues:
review of draft amendments already adopted during the biennium**

Consolidated list of adopted texts

Note by the secretariat*

This document contains draft amendments to the Recommendations on the Transport of Dangerous Goods, Manual of Tests and Criteria (ST/SG/AC.10/11/Rev.6 and Amend.1) which were adopted at the fifty-third session on the basis of informal documents that were not translated in all working languages and which, therefore, need to be carefully checked and confirmed.

* In accordance with the programme of work of the Sub-Committee for 2017–2018 approved by the Committee at its eighth session (see ST/SG/AC.10/C.3/100, paragraph 98 and ST/SG/AC.10/44, para. 14).

**Draft amendments to the sixth revised edition of the
Recommendations on the Transport of Dangerous Goods,
Manual of Tests and Criteria (ST/SG/AC.10/11/Rev.6) as
amended by ST/SG/AC.10/11/Rev.6/Amend.1**

Section 51

51.4.5.1 Amend to read as follows:

[“51.4.5.1 A compilation for the test results and classification data for more than 200 industrial nitrocellulose products is given in Appendix 11.”.]

(Reference document: informal document INF.67, Annex 3, amendment 5 and informal document INF.7 of the fifty-third session)

Insert the following new Appendix 11:

[“Appendix 11

Compilation of classification results on industrial nitrocellulose for the purposes of supply and use according to GHS Chapter 2.17, which can be used for the classification of industrial nitrocellulose products.

Requirements for the use of the test results for the classification of industrial nitrocellulose products:

1. The test results in this Appendix can only be used for the classification of industrial nitrocellulose products packed in UN approved fibre board boxes (4G) or fibre drums (1G) according to packing instruction P406. They cannot be used for nitrocellulose products in other pressure resistant packaging like steel drums.
2. The test results in this Appendix can only be used for industrial nitrocellulose products which fulfill the test requirements of the Bergmann Junk test for the thermal stability demonstrated by the fact that the quantity of nitrous vapours given off is not more than 2.5 ml/g NO during the test at 132 °C. The Bergman-Junk stability test is described in Appendix 10.

Test results

3. All industrial nitrocellulose products worldwide can be made comparable based upon their nitrogen content and their Norm-viscosities (according to ISO 14446). This method has been used for presenting the results of the tests in the following tables. It should be noted that Norm-viscosities are also used as found in the publications of the storage group classifications, whereby the storage group classification refers to the storage of industrial nitrocellulose in warehouses.

4. According to their nitrogen content three types of industrial nitrocellulose products have been defined:

- (a) E-grades as ester soluble products with nitrogen content from 11.8 to 12.3 %;
- (b) M-grades as medium soluble grades with nitrogen content of 11.3 to 11.8 %;
- (c) A-grades as alcohol soluble grades with a nitrogen content of 10.7 to 11.3 %.

The testing results have been grouped accordingly into 3 separate tables (A11.1 to A11.3).

5. The first column of the tables provides the types of the industrial nitrocellulose, which are identified according to ISO 14446 by a combination of two elements:

- (a) A 1- or 2-digit number, which indicates the concentration of the nitrocellulose solution that is required for a viscosity of 400 ± 25 mPa.s; and
- (b) A letter which identifies the solvent in which the nitrocellulose product is soluble.
 - (i) E stands for ester soluble;
 - (ii) M stands for medium soluble;
 - (iii) A stands for alcohol soluble.

For example for the nitrocellulose type 4E in the first table, with a concentration of 4%, a viscosity of 400 ± 25 mPa.s is achieved.

The viscosities are measured in a solvent mixture of 95% acetone/5% water with a Höppler viscometer. Historically industrial nitrocellulose types have been developed for a number of Norm-viscosities only and not for all Norm-viscosities. As it is technically possible to produce products with all Norm-viscosities, all relevant Norm-viscosities were entered in the tables, but some cells in the tables therefore remain empty.

6. The results of the tests are presented per phlegmatizer content for the phlegmatizers Isopropanol (IPA), Ethanol (ETH), Butanol (BUT) and Water and NC-chips with plasticiser.

Compilation of category classifications for NC-Norm grades according to GHS chapter 2.17 desensitized explosives*

Table A11.1: Part ester soluble E-grades with a nitrogen content of 11.8 to 12.3 %

NC-type	IPA 35%	IPA 30%	ETH 35%	ETH 30%	BUT 35%	BUT 30%	Water 35%	NC-Chips with 20% Plasticizer
3E								
4E	1 (330)	1 (760)	3	3	1 (530)	1 (540)		1 (1115)
5E								
6E	2		3		1 (390)			1 (1115)
7E	2	1 (430)	3	3	1 (320)	1 (420)		1 (1115)
8E	2		3		2	1 (420)		1 (1115)
9E	2	1 (330)	3	3	2	1 (420)		1 (1115)
10E	2		3		2			1 (1115)
11E								
12E	3	2	4	3	2	1 (330)	4	1 (1115)
13E	3		4		2			1 (1115)
14E								
15E	3	2	4	3	2	2		1 (1115)
16E								
17E								
18E	3		4		3			1 (1115)
19E								
20E	3	3	4	3	3			1 (1115)
21E					3	3		1 (1115)
22E	3	3	4	3	3	3	4	1 (1115)
23E	3	3	4		3		4	1 (1115)
24E	3	3	4	3	3	3		1 (1115)
25E	3	3	4	3	3	3	4	1 (1115)
26E								
27E	3	3	4	3	3	3		1 (1115)
28E	3	3	4		3			
29E								
30E					3	3		
31E	3		4					1 (1115)
32E	3	3	4	3	3	3		1 (1115)
33E								
34E	4	3	4	3	3			1 (1115)
35E								
36E								
37E								
38E								

* Source: Tests conducted by BAM from 1981 to 2011.

Table A11.2: Part medium soluble M-grades with a nitrogen content of 11.3 to 11.8 %

NC-Type	IPA 35%	IPA 30%	ETH 35%	ETH 30%	BUT 35%	BUT 30%	Water 35%	NC-Chips with 20% Plasticizer
12M					3			
13M								
14M	3	3	4	3				1 (1115)
15M					3	2		
16M								
17M	3	3	4	3	3			1 (1115)
18M	3	3	4	3	3			1 (1115)
19M								
20M								
21M	3	3	4	4	3			1 (1115)
22M								
23M								
24M					3	3		
25M					3	3		
26M								
27M	4	3	4	4	3	3	4	1 (1115)
28M								
29M								
30M					3	3		
31M								
32M					3	3		
33M								
34M	4	3	4	4	4			1 (1115)

Table A11.3: Part Alcohol-soluble A-grades with a Nitrogen content of 10.7 to 11.3 %

NC-Type	IPA 35%	IPA 30%	ETH 35%	ETH 30%	BUT 35%	BUT 30%	Water 35%	NC-Chips with 20% Plasticizer
7A								
8A								
9A	4	3	4	3	3			1 (1115)
10A								
11A								
12A								
13A								
14A								
15A	4	3	4	3	4	2		1 (1115)
16A								
17A								
18A								
19A								
20A								
21A								
22A								
23A	4	3	4	4	4			1 (1115)
24A					4	3		
25A					4	3		
26A								
27A	4	3	4	4	4	3		1 (1115)
28A								
29A								
30A	4	3	4	4	4	3	4	1 (1115)
31A	4	3	4	4				1 (1115)
32A	4	3	4	4	4	3		
33A		3	4					1 (1115)
34A								
35A								

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(Reference document: ST/SG/AC.10/C.3/106/Add.1)