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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

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Sub-Committee of Experts on the Transport of Dangerous Goods

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Item 7 (b) of the provisional agenda
Issues relating to the Globally Harmonized System of Classification and Labelling of Chemicals: Testing of oxidizing substances

Sub-Committee of Experts on the Globally Harmonized System of Classification and Labelling of Chemicals

Thirty-sixth session
Geneva, 5-7 December 2018
Item 3 (a) of the provisional agenda
Classification criteria and related hazard communication: Work of the Sub-Committee of Experts on the Transport of Dangerous Goods (TDG) on matters of interest to the GHS Sub-Committee

Tests for oxidizing liquids (UN Test O.2) and oxidizing solids (UN Tests O.1 and O.3) additional information on document ST/SG/AC.10/C.3/2018/116−ST/SG/AC.10/C.4/2018/24

Transmitted by the expert from France

1. In link with para 12-13 and 19 of ST/SG/AC.10/C.3/2018/116-ST/SG/AC.10/C.4/2018/24 and to illustrate the difficulties occurring with the current coefficient of correlation R^2 and the standard deviation criteria (resp. at least 0.95 and not exceeding 10%), we extracted the relevant tables (below in para 2-4) from document UN/SCETDG/49/INF.47 which gave the final report on the Round Robin Testing (2015-2016) on oxidizing substances.

Standard deviation

2. The standard deviation obtained by the participant laboratories for each reference substance mixture and tests sample mixture are given in Table 1. The values greater than 10 % are bold. There are only 30 values lower than 10% over a total of 73 values.

Results	Unit	Lab 1	Lab 2	Lab 3	Lab 4	Lab 5	Lab 6 (2016)	Lab 9 (2015)	Lab 10 (2015)	Lab 13	Lab 14	Lab 6 (2015)
PGIII	%	8.5	3.2	6.1	8.0	**15.9**	**10.7**	**22.6**	**26.2**	5.1	10.0	9.5
PGII	%	7.9	1.9	**13.7**	**17.4**	**10.1**	**12.6**	4.9	**20.1**	**12.6**	8.1	7.7
PGI	%	**15.4**	2.9	**10.2**	**22.8**	**14.3**	**28.9**	9.8	**19.0**	6.6	5.2	**22.8**
OTS1 1-1	%	9.2	3.4	**12.4**	**22.4**	**12.8**	9.2	**13.5**	**13.9**	6.6	**17.0**	7.5
OTS1 4-1	%	**50.4**	**27.0**	**13.4**	**53.3**	**25.3**	**46.4**	**73.0**	**19.0**	**14.4**	**45.4**	**30.8**
OTS2 1-1	%	9.4	4.9	**11.4**	8.2	3.4	**11.5**	**16.7**	6.2	8.9	9.4	**15.8**
OTS2 4-1	%	6.1	3.2	**19.4**	**13.1**	**11.3**	7.3	**13.8**	**11.6**	**21.4**	**11.3**	**23.8**

Table 1: TECHNOCEL 75 - standard deviation for each reference substance mixture and tests sample mixture

Coefficient of correlation (R^2)

3. The coefficients of correlation obtained by all the participant laboratories are indicated in the Table 2. It is counted the number of tries for which the value of R^2 is included in the different intervals. As it can be seen, a coefficient of correlation greater than or equal to 0.95 is not always reached for reference mixtures or samples mixtures.

	[1.00;0.95]	]0.95;0.90]	]0.90;0.80]	]0.80;0.70]	]0.70;0.00]	Number of total test
PG III	71	0	2	5	0	78
PG II	75	1	1	0	0	77
PG I	65	10	4	2	0	81
OTS1 1-1	67	0	0	0	0	67
OTS1 4-1	43	11	6	4	4	68
OTS2 1-1	69	2	0	0	0	71
OTS2 4-1	69	0	2	0	0	71

Table 2: TECHNOCEL 75 - Coefficients of correlation obtained for all mixture

Mean burning rate Br_{20-80}

4. The mean burning rate Br_{20-80} obtained by the participant laboratories for each reference substance mixture and tests sample mixture are given in Table 3. The results are in red when the coefficient of correlation is lower than 0.95 for at least one of the tests. The results are in blue when there are only two values tests.

Results	Unit	Lab 1	Lab 2	Lab 3	Lab 4	Lab 5	Lab 6 (2016)	Lab 9 (2015)	Lab 10 (2015)	Lab 13	Lab 14	Lab 6 (2015)
PGIII	g/s	0.27	0.25	0.26	0.29	0.31	0.28	0.15	0.22	0.25	0.30	0.21
PGII	g/s	0.50	0.55	0.60	0.64	0.54	0.49	0.64	0.61	0.47	0.45	0.37
PGI	g/s	1.20	1.04	1.13	1.14	1.75	1.20	1.04	1.21	1.00	0.83	1.18
OTS1 1-1	g/s	**0.34**	**0.53**	**0.42**	**0.30**	**0.61**	**0.37**	**1.73**	**0.33**	**0.21**	**0.37**	**0.75**
OTS1 4-1	g/s	0.06	0.01	0.23	0.04	0.28	0.04	0.22	0.19	0.05	0.07	0.45
OTS2 1-1	g/s	**0.36**	0.11	**0.55**	**0.38**	0.50	0.48	**0.59**	0.35	**0.23**	**0.41**	**0.39**
OTS2 4-1	g/s	0.23	**0.16**	0.18	0.19	**0.25**	**0.66**	0.58	**0.22**	0.13	0.26	0.30

Table 3: TECHNOCEL 75 -Laboratory mean burning rate for each reference substance mixture and tests sample mixture