



REPORT OF THE THIRTY-SIXTH MEETING OF THE VALIDATION GROUP FOR THE UPDATING OF THE OPCW CENTRAL ANALYTICAL DATABASE 6 AND 7 SEPTEMBER 2012

1. The Validation Group (hereinafter “the Group”) met on 6 and 7 September 2012 to discuss the evaluation of new analytical data for possible inclusion in the OPCW Central Analytical Database (OCAD) and to consider matters related to it. Mr James Riches of the United Kingdom of Great Britain and Northern Ireland acted as Chairperson of the meeting.
2. The evaluators for the analytical techniques evaluated new data and sent their written reports to the coordinators for each analytical technique. The names of the coordinators who were present at the meeting, along with the technique for which each is responsible, are listed below:

Gas chromatography (retention index) (GC(RI))

Mr Leo de Reuver (Netherlands) on behalf of
Mr Martin Söderström (Finland)

Mass spectrometry (MS)

Mr Sten-Åke Fredriksson (Sweden)

Infrared spectroscopy (IR)

Mr Armando Alcaraz (United States of America)

These coordinators provided an evaluation summary to the Group for discussion at the meeting. The evaluators finalised the evaluation of the analytical data and confirmed that the data approved is technically valid.

3. This report of the Group’s Thirty-Sixth Meeting presents the sets of validated analytical data of scheduled chemicals (see Annex 1) that are to be forwarded to the Director-General for appropriate action. During the meeting, the Group also validated data relevant to non-scheduled chemicals (see Annex 2).
4. The Technical Secretariat informed the Group that the data on scheduled chemicals validated by the Group at its previous meeting had been approved by the Executive Council at its Sixty-Ninth Session (EC-69/DEC.1, dated 11 July 2012).
5. The Group noted that the number of members in both the GC(RI) and IR subgroups has decreased to the minimum that is required to attend meetings for evaluation of data. It is critical that these subgroups remain strong, and the Group urgently requests



the Member States to nominate technical experts to join the subgroups. All subgroup members are encouraged to evaluate data and attend the meetings.

6. The Group was informed that a new version of the OCAD (v15_2012) will be officially released in December 2012 and that a new version of the Validation Group Working Database (VGWD_2012) will also be available at the same time.
7. The Group discussed the submission of MS/MS (tandem-mass spectrometry) data. A set of LC (liquid chromatograph)-MS/MS data was submitted by Mr Jiri Cermak for consideration by the MS subgroup. The data was considered by the MS subgroup and it was agreed that the data will be submitted to all members of the Group for informal evaluation. It was also agreed that this subgroup, before the Thirty-Seventh Meeting, would also consider a system for collating this data. Mr James Riches, Mr Sten-Åke Fredriksson, and Mr Armando Alcaraz agreed to complete further MS/MS submissions by the next meeting.
8. The Group discussed some GC(RI) data provided by Mr Bedrich Uchytíl. The data showed that the Rxi-5MS column used by the OPCW Laboratory is equivalent to the HP-5MS phase. The data also re-confirmed that RIs measured on the DB-5MS phase are different from those measured on the HP-5MS phase.
9. Current MS data submission practice applies a low-intensity ion cut off ($\leq 0.5\%$) to MS data. The Group was provided with an example where relevant ions from raw MS data (one that supported an unexplained ion in data submitted previously and a molecular ion) were rejected by the Group on the basis of the application of the low-intensity ion cut-off. The Group agreed that data without the cut-off application would be submitted to the MS subgroup on a trial basis before any decision to alter the data-evaluation procedures would be considered.
10. Approximately 150 MS spectra and GC(RI) analytical data are available for evaluation for the Thirty-Seventh Meeting. Available data from all techniques will be sent to the Group at least six weeks before the next scheduled meeting.
11. The next meeting is scheduled to take place on 12 and 13 March 2013. The evaluators agreed to send their written evaluation reports to the appointed coordinators no later than 26 February 2013. The evaluators have agreed to come to that meeting prepared to finalise the evaluation of the analytical data referred to in the previous paragraph.
12. The Group noted the resignation of Mr Bedrich Uchytíl, who was thanked for his valuable and lasting contributions during 36 meetings of the Group.
13. Annex 3 to this report lists the evaluators.

Annexes:

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| Annex 1: | Lists of Approved Data Recommended for Inclusion in the OCAD |
| Annex 2: | Lists of Approved Non-Scheduled Chemical Data Relevant to the Chemical Weapons Convention |
| Annex 3: | List of Members of the Validation Group |

Annex 1**LISTS OF APPROVED DATA RECOMMENDED FOR INCLUSION
IN THE OCAD**

Note: In the last column of the tables that follow in this Annex, “A” means “accepted”; “B” means “accepted subject to minor corrections”.

TABLE 1: LIST OF APPROVED MS DATA OF SCHEDULED CHEMICALS

OPCW Code	Chemical Name	Schedule	Decision
07-2-3193	Methyl 2-dimethylaminoethyl methylphosphonate	2.B.04	A
07-2-3194	Methyl 2-diethylaminoethyl methylphosphonate	2.B.04	A
07-2-3195	Methyl 2-dipropylaminoethyl methylphosphonate	2.B.04	A
07-2-3196	Methyl 2-diisopropylaminoethyl methylphosphonate	2.B.04	A
07-2-3197	Ethyl 2-dimethylaminoethyl methylphosphonate	2.B.04	A
07-2-3198	Ethyl 2-diethylaminoethyl methylphosphonate	2.B.04	A
07-2-3199	Ethyl 2-dipropylaminoethyl methylphosphonate	2.B.04	A
07-2-3200	Ethyl 2-diisopropylaminoethyl methylphosphonate	2.B.04	A
07-2-3201	Propyl 2-dimethylaminoethyl methylphosphonate	2.B.04	A
07-2-3202	Propyl 2-diethylaminoethyl methylphosphonate	2.B.04	A
07-2-3203	Propyl 2-dipropylaminoethyl methylphosphonate	2.B.04	A
07-2-3204	Propyl 2-diisopropylaminoethyl methylphosphonate	2.B.04	A
07-2-3205	Isopropyl 2-dimethylaminoethyl methylphosphonate	2.B.04	A
07-2-3206	Isopropyl 2-diethylaminoethyl methylphosphonate	2.B.04	A
07-2-3207	Isopropyl 2-dipropylaminoethyl methylphosphonate	2.B.04	A
07-2-3208	Isopropyl 2-diisopropylaminoethyl methylphosphonate	2.B.04	A
07-2-3209	Butyl 2-dimethylaminoethyl methylphosphonate	2.B.04	A
07-2-3210	Butyl 2-diethylaminoethyl methylphosphonate	2.B.04	A
07-2-3211	Butyl 2-dipropylaminoethyl methylphosphonate	2.B.04	A
07-2-3212	Butyl 2-diisopropylaminoethyl methylphosphonate	2.B.04	A
07-2-3213a	sec-Butyl 2-dimethylaminoethyl methylphosphonate	2.B.04	A
07-2-3213b	sec-Butyl 2-dimethylaminoethyl methylphosphonate	2.B.04	A
07-2-3214a	sec-Butyl 2-diethylaminoethyl methylphosphonate	2.B.04	A
07-2-3214b	sec-Butyl 2-diethylaminoethyl methylphosphonate	2.B.04	A
07-2-3215a	sec-Butyl 2-dipropylaminoethyl methylphosphonate	2.B.04	A
07-2-3215b	sec-Butyl 2-dipropylaminoethyl methylphosphonate	2.B.04	A
07-2-3216a	sec-Butyl 2-diisopropylaminoethyl methylphosphonate	2.B.04	A
07-2-3216b	sec-Butyl 2-diisopropylaminoethyl methylphosphonate	2.B.04	A
07-2-3217	Isobutyl 2-dimethylaminoethyl methylphosphonate	2.B.04	A
07-2-3218	Isobutyl 2-diethylaminoethyl methylphosphonate	2.B.04	A
07-2-3219	Isobutyl 2-dipropylaminoethyl methylphosphonate	2.B.04	A
07-2-3220	Isobutyl 2-diisopropylaminoethyl methylphosphonate	2.B.04	A
07-2-3221	Cyclohexyl 2-dimethylaminoethyl methylphosphonate	2.B.04	A
07-2-3222	Cyclohexyl 2-diethylaminoethyl methylphosphonate	2.B.04	A
07-2-3223	Cyclohexyl 2-dipropylaminoethyl methylphosphonate	2.B.04	A
07-2-3224	Cyclohexyl 2-diisopropylaminoethyl methylphosphonate	2.B.04	A

OPCW Code	Chemical Name	Schedule	Decision
07-2-3225a	Pinacolyl 2-dimethylaminoethyl methylphosphonate	2.B.04	A
07-2-3225b	Pinacolyl 2-dimethylaminoethyl methylphosphonate	2.B.04	A
07-2-3226a	Pinacolyl 2-diethylaminoethyl methylphosphonate	2.B.04	A
07-2-3226b	Pinacolyl 2-diethylaminoethyl methylphosphonate	2.B.04	A
07-2-3227a	Pinacolyl 2-dipropylaminoethyl methylphosphonate	2.B.04	A
07-2-3227b	Pinacolyl 2-dipropylaminoethyl methylphosphonate	2.B.04	A
07-2-3228a	Pinacolyl 2-diisopropylaminoethyl methylphosphonate	2.B.04	A
07-2-3228b	Pinacolyl 2-diisopropylaminoethyl methylphosphonate	2.B.04	A
07-2-3229	Methyl 2-dimethylaminoethyl ethylphosphonate	2.B.04	A
07-2-3230	Methyl 2-diethylaminoethyl ethylphosphonate	2.B.04	A
07-2-3231	Methyl 2-dipropylaminoethyl ethylphosphonate	2.B.04	A
07-2-3232	Methyl 2-diisopropylaminoethyl ethylphosphonate	2.B.04	A
07-2-3233	Ethyl 2-dimethylaminoethyl ethylphosphonate	2.B.04	A
07-2-3234	Ethyl 2-diethylaminoethyl ethylphosphonate	2.B.04	A
07-2-3235	Ethyl 2-dipropylaminoethyl ethylphosphonate	2.B.04	A
07-2-3236	Ethyl 2-diisopropylaminoethyl ethylphosphonate	2.B.04	A
07-2-3237	Propyl 2-dimethylaminoethyl ethylphosphonate	2.B.04	A
07-2-3238	Propyl 2-diethylaminoethyl ethylphosphonate	2.B.04	A
07-2-3239	Propyl 2-dipropylaminoethyl ethylphosphonate	2.B.04	A
07-2-3240	Propyl 2-diisopropylaminoethyl ethylphosphonate	2.B.04	A
07-2-3241	Isopropyl 2-dimethylaminoethyl ethylphosphonate	2.B.04	A
07-2-3242	Isopropyl 2-diethylaminoethyl ethylphosphonate	2.B.04	A
07-2-3243	Isopropyl 2-dipropylaminoethyl ethylphosphonate	2.B.04	A
07-2-3244	Isopropyl 2-diisopropylaminoethyl ethylphosphonate	2.B.04	A
07-2-3245	Butyl 2-dimethylaminoethyl ethylphosphonate	2.B.04	A
07-2-3246	Butyl 2-diethylaminoethyl ethylphosphonate	2.B.04	A
07-2-3247	Butyl 2-dipropylaminoethyl ethylphosphonate	2.B.04	A
07-2-3248	Butyl 2-diisopropylaminoethyl ethylphosphonate	2.B.04	A
07-2-3249b	sec-Butyl 2-dimethylaminoethyl ethylphosphonate	2.B.04	A
07-2-3250a	sec-Butyl 2-diethylaminoethyl ethylphosphonate	2.B.04	A
07-2-3250b	sec-Butyl 2-diethylaminoethyl ethylphosphonate	2.B.04	A
07-2-3251a	sec-Butyl 2-dipropylaminoethyl ethylphosphonate	2.B.04	A
07-2-3251b	sec-Butyl 2-dipropylaminoethyl ethylphosphonate	2.B.04	A
07-2-3252a	sec-Butyl 2-diisopropylaminoethyl ethylphosphonate	2.B.04	A
07-2-3252b	sec-Butyl 2-diisopropylaminoethyl ethylphosphonate	2.B.04	A
07-2-3253	Isobutyl 2-dimethylaminoethyl ethylphosphonate	2.B.04	A
07-2-3254	Isobutyl 2-diethylaminoethyl ethylphosphonate	2.B.04	A
07-2-3255	Isobutyl 2-dipropylaminoethyl ethylphosphonate	2.B.04	A
07-2-3256	Isobutyl 2-diisopropylaminoethyl ethylphosphonate	2.B.04	A
07-2-3257	Cyclohexyl 2-dimethylaminoethyl ethylphosphonate	2.B.04	A
07-2-3258	Cyclohexyl 2-diethylaminoethyl ethylphosphonate	2.B.04	A
07-2-3259	Cyclohexyl 2-dipropylaminoethyl ethylphosphonate	2.B.04	A
07-2-3260	Cyclohexyl 2-diisopropylaminoethyl ethylphosphonate	2.B.04	A
07-2-3261a	Pinacolyl 2-dimethylaminoethyl ethylphosphonate	2.B.04	A
07-2-3261b	Pinacolyl 2-dimethylaminoethyl ethylphosphonate	2.B.04	A

OPCW Code	Chemical Name	Schedule	Decision
07-2-3262a	Pinacolyl 2-diethylaminoethyl ethylphosphonate	2.B.04	A
07-2-3262b	Pinacolyl 2-diethylaminoethyl ethylphosphonate	2.B.04	A
07-2-3263a	Pinacolyl 2-dipropylaminoethyl ethylphosphonate	2.B.04	A
07-2-3263b	Pinacolyl 2-dipropylaminoethyl ethylphosphonate	2.B.04	A
07-2-3264a	Pinacolyl 2-diisopropylaminoethyl ethylphosphonate	2.B.04	A
07-2-3264b	Pinacolyl 2-diisopropylaminoethyl ethylphosphonate	2.B.04	A
16-2-0175	Bis(1-methyl-2-methoxyethyl) methylphosphonate	2.B.04	A
16-2-0178a	Isopropyl 1-methyl-2-methoxyethyl methylphosphonate	2.B.04	A
16-2-0180	1-Methyl-2-methoxyethyl propyl ethylphosphonate	2.B.04	A
16-2-0182a	Butyl 1-methyl-2-methoxyethyl methylphosphonate	2.B.04	A
16-2-0182b	Butyl 1-methyl-2-methoxyethyl methylphosphonate	2.B.04	A
16-2-0183a	Butyl 1-methyl-2-methoxyethyl ethylphosphonate	2.B.04	A
16-2-0183b	Butyl 1-methyl-2-methoxyethyl ethylphosphonate	2.B.04	A
16-2-0185	Butyl 1-methyl-2-methoxyethyl propylphosphonate	2.B.04	A
16-2-0186	Bis(1-methyl-2-methoxyethyl) propylphosphonate	2.B.04	A
16-2-0187b	1,2-Dimethylpropyl 2-methoxyethyl propylphosphonate	2.B.04	A
16-2-0188a	Cyclopentyl 1-methyl-2-methoxyethyl ethylphosphonate	2.B.04	A
16-2-0188b	Cyclopentyl 1-methyl-2-methoxyethyl ethylphosphonate	2.B.04	A
16-2-0190	2-Isopropoxyethyl methyl methylphosphonate	2.B.04	A
16-2-0191	Bis(2-isopropoxyethyl) methylphosphonate	2.B.04	A
16-2-0193	Bis(2-isopropoxyethyl) ethylphosphonate	2.B.04	A
16-2-0195	Bis(2-isopropoxyethyl) propylphosphonate	2.B.04	A
16-2-0200	2-Isopropoxyethyl isopropyl ethylphosphonate	2.B.04	A
16-2-0201	2-Isopropoxyethyl isopropyl propylphosphonate	2.B.04	A
17-2-0379	Ethyldiethanolamine	3.B.15	A
17-2-0381	Trimethyl phosphite	3.B.08	A
28-2-0013ar	2,4-Dimethyl-1,3,2-dioxaphospholane-2-oxide	2.B.04	A
28-2-0013br	2,4-Dimethyl-1,3,2-dioxaphospholane-2-oxide	2.B.04	A
28-2-0017ar	2-Ethyl-4-methyl-1,3,2-dioxaphospholane-2-oxide	2.B.04	A
28-2-0017br	2-Ethyl-4-methyl-1,3,2-dioxaphospholane-2-oxide	2.B.04	A
28-2-0018ar	2,4-Diethyl-1,3,2-dioxaphospholane-2-oxide	2.B.04	A
28-2-0018br	2,4-Diethyl-1,3,2-dioxaphospholane-2-oxide	2.B.04	A
28-2-0021ar	4-Methyl-2-propyl-1,3,2-dioxaphospholane-2-oxide	2.B.04	A
28-2-0021br	4-Methyl-2-propyl-1,3,2-dioxaphospholane-2-oxide	2.B.04	A
28-2-0022ar	4-Ethyl-2-propyl-1,3,2-dioxaphospholane-2-oxide	2.B.04	A
28-2-0022br	4-Ethyl-2-propyl-1,3,2-dioxaphospholane-2-oxide	2.B.04	A
28-2-0024cr	5-Ethyl-2,4-dipropyl-1,3,2-dioxaphosphinane-2-oxide	2.B.04	A
28-2-0025ar	2,4-Dimethyl-1,3,2-dioxaphospholane-2-sulfide	2.B.04	A
28-2-0025br	2,4-Dimethyl-1,3,2-dioxaphospholane-2-sulfide	2.B.04	A
28-2-0026ar	4-Ethyl-2-methyl-1,3,2-dioxaphospholane-2-sulfide	2.B.04	A
28-2-0026br	4-Ethyl-2-methyl-1,3,2-dioxaphospholane-2-sulfide	2.B.04	A
28-2-0030ar	2,4-Diethyl-1,3,2-dioxaphospholane-2-sulfide	2.B.04	A
28-2-0030br	2,4-Diethyl-1,3,2-dioxaphospholane-2-sulfide	2.B.04	A
28-2-0032r	2,5-Diethyl-4-propyl-1,3,2-dioxaphosphinane-2-sulfide	2.B.04	A
28-2-0033ar	4-Methyl-2-propyl-1,3,2-dioxaphospholane-2-sulfide	2.B.04	A

OPCW Code	Chemical Name	Schedule	Decision
28-2-0034ar	4-Ethyl-2-propyl-1,3,2-dioxaphospholane-2-sulfide	2.B.04	A
28-2-0034br	4-Ethyl-2-propyl-1,3,2-dioxaphospholane-2-sulfide	2.B.04	A
28-2-0035cr	4,5-Dimethyl-2-propyl-1,3,2-dioxaphospholane-2-sulfide	2.B.04	A
28-2-0036r	5-Ethyl-2,4-dipropyl-1,3,2-dioxaphosphinane-2-sulfide	2.B.04	A
29-2-0001	2-Methyl-1,3,2-dithiaphosphinane-2-sulfide	2.B.04	A
29-2-0002a	2,4-Dimethyl-1,3,2-dithiaphospholane-2-sulfide	2.B.04	A
29-2-0002b	2,4-Dimethyl-1,3,2-dithiaphospholane-2-sulfide	2.B.04	A
29-2-0003a	Methyl 1-methylbut-3-enyl methylphosphonate	2.B.04	A
29-2-0003b	Methyl 1-methylbut-3-enyl methylphosphonate	2.B.04	A
29-2-0004	Methyl 3-methylbut-3-enyl methylphosphonate	2.B.04	A
29-2-0005	Methyl pent-4-enyl methylphosphonate	2.B.04	A
29-2-0006	Methyl 3-methylbut-2-enyl methylphosphonate	2.B.04	A
29-2-0007a	Methyl 1-methylbut-2-enyl methylphosphonate	2.B.04	A
29-2-0008a	1-Ethylprop-2-enyl methyl methylphosphonate	2.B.04	A
29-2-0008b	1-Ethylprop-2-enyl methyl methylphosphonate	2.B.04	A
29-2-0009	Methyl pent-2-enyl methylphosphonate	2.B.04	A
29-2-0010	1,2-Dimethylprop-2-enyl methyl methylphosphonate	2.B.04	A

TABLE 2: LIST OF APPROVED MS DATA OF DERIVATIVES OF SCHEDULED CHEMICALS

OPCW Code	Chemical Name	Schedule	Associated Chemical Schedule	Decision
08-2-0127	Bis(2-heptafluorobutyryloxyethyl)sulfide	DS	2.B.13	B

TABLE 3: LIST OF APPROVED GC(RI) DATA

Note: A “1” under the “Column” heading means an HP5 or an SE54 column; a “2” under the “Column” heading means a DB5 column.

OPCW Code	Chemical Name	Schedule	Column	RI(a)	RI(b)	Decision
07-4-2956	Methyl 2-dimethylaminoethyl methylphosphonate	2.B.04	2	1210		A
07-4-2957	Methyl 2-diethylaminoethyl methylphosphonate	2.B.04	2	1368		A
07-4-2958	Methyl 2-dipropylaminoethyl methylphosphonate	2.B.04	2	1521		A
07-4-2959	Methyl 2-diisopropylaminoethyl methylphosphonate	2.B.04	2	1497		A
07-4-2960	Ethyl 2-dimethylaminoethyl methylphosphonate	2.B.04	2	1270		A
07-4-2961	Ethyl 2-diethylaminoethyl methylphosphonate	2.B.04	2	1424		A
07-4-2962	Ethyl 2-dipropylaminoethyl methylphosphonate	2.B.04	2	1574		A
07-4-2963	Ethyl 2-diisopropylaminoethyl methylphosphonate	2.B.04	2	1552		A
07-4-2964	Propyl 2-dimethylaminoethyl methylphosphonate	2.B.04	2	1360		A
07-4-2965	Propyl 2-diethylaminoethyl methylphosphonate	2.B.04	2	1513		A
07-4-2966	Propyl 2-dipropylaminoethyl methylphosphonate	2.B.04	2	1663		A
07-4-2967	Propyl 2-diisopropylaminoethyl methylphosphonate	2.B.04	2	1640		A
07-4-2968	Isopropyl 2-dimethylaminoethyl methylphosphonate	2.B.04	2	1292		A
07-4-2969	Isopropyl 2-diethylaminoethyl methylphosphonate	2.B.04	2	1446		A
07-4-2970	Isopropyl 2-dipropylaminoethyl methylphosphonate	2.B.04	2	1595		A
07-4-2971	Isopropyl 2-diisopropylaminoethyl methylphosphonate	2.B.04	2	1572		A
07-4-2972	Butyl 2-dimethylaminoethyl methylphosphonate	2.B.04	2	1454		A
07-4-2973	Butyl 2-diethylaminoethyl methylphosphonate	2.B.04	2	1605		A
07-4-2974	Butyl 2-dipropylaminoethyl methylphosphonate	2.B.04	2	1754		A
07-4-2975	Butyl 2-diisopropylaminoethyl methylphosphonate	2.B.04	2	1731		A
07-4-2976	sec-Butyl 2-dimethylaminoethyl methylphosphonate	2.B.04	2	1384	1390	A
07-4-2977	sec-Butyl 2-diethylaminoethyl methylphosphonate	2.B.04	2	1537	1544	A
07-4-2978	sec-Butyl 2-dipropylaminoethyl methylphosphonate	2.B.04	2	1685	1692	A
07-4-2979	sec-Butyl 2-diisopropylaminoethyl methylphosphonate	2.B.04	2	1661	1669	A
07-4-2980	Isobutyl 2-dimethylaminoethyl methylphosphonate	2.B.04	2	1409		A
07-4-2981	Isobutyl 2-diethylaminoethyl methylphosphonate	2.B.04	2	1562		A
07-4-2982	Isobutyl 2-dipropylaminoethyl methylphosphonate	2.B.04	2	1709		A

OPCW Code	Chemical Name	Schedule	Column	RI(a)	RI(b)	Decision
07-4-2983	Isobutyl 2-diisopropylaminoethyl methylphosphonate	2.B.04	2	1686		A
07-4-2984	Cyclohexyl 2-dimethylaminoethyl methylphosphonate	2.B.04	2	1695		A
07-4-2985	Cyclohexyl 2-diethylaminoethyl methylphosphonate	2.B.04	2	1852		A
07-4-2986	Cyclohexyl 2-dipropylaminoethyl methylphosphonate	2.B.04	2	2002		A
07-4-2987	Cyclohexyl 2-diisopropylaminoethyl methylphosphonate	2.B.04	2	1980		A
07-4-2988	Pinacolyl 2-dimethylaminoethyl methylphosphonate	2.B.04	2	1497	1513	A
07-4-2989	Pinacolyl 2-diethylaminoethyl methylphosphonate	2.B.04	2	1653	1667	A
07-4-2990	Pinacolyl 2-dipropylaminoethyl methylphosphonate	2.B.04	2	1800	1815	A
07-4-2991	Pinacolyl 2-diisopropylaminoethyl methylphosphonate	2.B.04	2	1775	1792	A
07-4-2992	Methyl 2-dimethylaminoethyl ethylphosphonate	2.B.04	2	1292		A
07-4-2993	Methyl 2-diethylaminoethyl ethylphosphonate	2.B.04	2	1447		A
07-4-2994	Methyl 2-dipropylaminoethyl ethylphosphonate	2.B.04	2	1599		A
07-4-2995	Methyl 2-diisopropylaminoethyl ethylphosphonate	2.B.04	2	1575		A
07-4-2996	Ethyl 2-dimethylaminoethyl ethylphosphonate	2.B.04	2	1347		A
07-4-2997	Ethyl 2-diethylaminoethyl ethylphosphonate	2.B.04	2	1498		A
07-4-2998	Ethyl 2-dipropylaminoethyl ethylphosphonate	2.B.04	2	1648		A
07-4-2999	Ethyl 2-diisopropylaminoethyl ethylphosphonate	2.B.04	2	1624		A
07-4-3000	Propyl 2-dimethylaminoethyl ethylphosphonate	2.B.04	2	1435		A
07-4-3001	Propyl 2-diethylaminoethyl ethylphosphonate	2.B.04	2	1586		A
07-4-3002	Propyl 2-dipropylaminoethyl ethylphosphonate	2.B.04	2	1734		A
07-4-3003	Propyl 2-diisopropylaminoethyl ethylphosphonate	2.B.04	2	1710		A
07-4-3004	Isopropyl 2-dimethylaminoethyl ethylphosphonate	2.B.04	2	1367		A
07-4-3005	Isopropyl 2-diethylaminoethyl ethylphosphonate	2.B.04	2	1519		A
07-4-3006	Isopropyl 2-dipropylaminoethyl ethylphosphonate	2.B.04	2	1666		A
07-4-3007	Isopropyl 2-diisopropylaminoethyl ethylphosphonate	2.B.04	2	1642		A
07-4-3008	Butyl 2-dimethylaminoethyl ethylphosphonate	2.B.04	2	1527		A
07-4-3009	Butyl 2-diethylaminoethyl ethylphosphonate	2.B.04	2	1676		A
07-4-3010	Butyl 2-dipropylaminoethyl ethylphosphonate	2.B.04	2	1821		A
07-4-3011	Butyl 2-diisopropylaminoethyl ethylphosphonate	2.B.04	2	1798		A
07-4-3012	sec-Butyl 2-dimethylaminoethyl ethylphosphonate	2.B.04	2	1457	1464	A
07-4-3013	sec-Butyl 2-diethylaminoethyl ethylphosphonate	2.B.04	2	1608	1615	A

OPCW Code	Chemical Name	Schedule	Column	RI(a)	RI(b)	Decision
07-4-3014	sec-Butyl 2-dipropylaminoethyl ethylphosphonate	2.B.04	2	1755	1762	A
07-4-3015	sec-Butyl 2-diisopropylaminoethyl ethylphosphonate	2.B.04	2	1730	1738	A
07-4-3016	Isobutyl 2-dimethylaminoethyl ethylphosphonate	2.B.04	2	1483		A
07-4-3017	Isobutyl 2-diethylaminoethyl ethylphosphonate	2.B.04	2	1633		A
07-4-3018	Isobutyl 2-dipropylaminoethyl ethylphosphonate	2.B.04	2	1778		A
07-4-3019	Isobutyl 2-diisopropylaminoethyl ethylphosphonate	2.B.04	2	1754		A
07-4-3020	Cyclohexyl 2-dimethylaminoethyl ethylphosphonate	2.B.04	2	1769		A
07-4-3021	Cyclohexyl 2-diethylaminoethyl ethylphosphonate	2.B.04	2	1921		A
07-4-3022	Cyclohexyl 2-dipropylaminoethyl ethylphosphonate	2.B.04	2	2070		A
07-4-3023	Cyclohexyl 2-diisopropylaminoethyl ethylphosphonate	2.B.04	2	2047		A
07-4-3024	Pinacolyl 2-dimethylaminoethyl ethylphosphonate	2.B.04	2	1571	1588	A
07-4-3025	Pinacolyl 2-diethylaminoethyl ethylphosphonate	2.B.04	2	1721	1737	A
07-4-3026	Pinacolyl 2-dipropylaminoethyl ethylphosphonate	2.B.04	2	1867	1883	A
07-4-3027	Pinacolyl 2-diisopropylaminoethyl ethylphosphonate	2.B.04	2	1840	1858	A
16-4-0208	Ethyl 1-methyl-2-methoxyethyl methylphosphonate	2.B.04	1	1236		A
16-4-0209	Bis(1-methyl-2-methoxyethyl) methylphosphonate	2.B.04	1	1435		A
16-4-0210	Ethyl 1-methyl-2-methoxyethyl ethylphosphonate	2.B.04	1	1307		A
16-4-0211	Ethyl 1-methyl-2-methoxyethyl propylphosphonate	2.B.04	1	1385		A
16-4-0212	Isopropyl 1-methyl-2-methoxyethyl methylphosphonate	2.B.04	1	1257	1263	A
16-4-0213	Isopropyl 1-methyl-2-methoxyethyl ethylphosphonate	2.B.04	1	1326	1329	A
16-4-0214	1-Methyl-2-methoxyethyl propyl ethylphosphonate	2.B.04	1	1404		A
16-4-0215	1-Methyl-2-methoxyethyl propyl propylphosphonate	2.B.04	1	1472		A
16-4-0216	Butyl 1-methyl-2-methoxyethyl methylphosphonate	2.B.04	1	1412	1420	A
16-4-0217	Butyl 1-methyl-2-methoxyethyl ethylphosphonate	2.B.04	1	1483	1488	A
16-4-0218	Bis(1-methyl-2-methoxyethyl) ethylphosphonate	2.B.04	1	1507		A
16-4-0219	Butyl 1-methyl-2-methoxyethyl propylphosphonate	2.B.04	1	1566		A
16-4-0220	Bis(1-methyl-2-methoxyethyl) propylphosphonate	2.B.04	1	1581		A
16-4-0221	1,2-Dimethylpropyl 2-methoxyethyl propylphosphonate	2.B.04	1	1549	1560	A
16-4-0222	Cyclopentyl 1-methyl-2-methoxyethyl ethylphosphonate	2.B.04	1	1614	1621	A
16-4-0223	Cyclopentyl 1-methyl-2-methoxyethyl propylphosphonate	2.B.04	1	1692	1697	A
16-4-0224	2-Isopropoxyethyl methyl methylphosphonate	2.B.04	1	1280		A

OPCW Code	Chemical Name	Schedule	Column	RI(a)	RI(b)	Decision
16-4-0225	Bis(2-isopropoxyethyl) methylphosphonate	2.B.04	1	1642		A
16-4-0226	2-Isopropoxyethyl methyl ethylphosphonate	2.B.04	1	1361		A
16-4-0227	Bis(2-isopropoxyethyl) ethylphosphonate	2.B.04	1	1710		A
16-4-0228	2-Isopropoxyethyl methyl propylphosphonate	2.B.04	1	1438		A
16-4-0229	Bis(2-isopropoxyethyl) propylphosphonate	2.B.04	1	1778		A
16-4-0230	Ethyl 2-isopropoxyethyl methylphosphonate	2.B.04	1	1345		A
16-4-0231	Ethyl 2-isopropoxyethyl ethylphosphonate	2.B.04	1	1424		A
16-4-0232	Ethyl 2-isopropoxyethyl propylphosphonate	2.B.04	1	1485		A
16-4-0233	2-Isopropoxyethyl isopropyl methylphosphonate	2.B.04	1	1367		A
16-4-0234	2-Isopropoxyethyl isopropyl ethylphosphonate	2.B.04	1	1429		A
16-4-0235	2-Isopropoxyethyl isopropyl propylphosphonate	2.B.04	1	1506		A
16-4-0236	2-Isopropoxyethyl propyl methylphosphonate	2.B.04	1	1430		A
16-4-0237	2-Isopropoxyethyl propyl ethylphosphonate	2.B.04	1	1501		A
16-4-0238	2-Isopropoxyethyl propyl propylphosphonate	2.B.04	1	1576		A
17-4-0475	Ethyl diethanolamine	3.B.15	1	1149		B
17-4-0477	Trimethyl phosphite	3.B.08	1	740		A
17-4-0478	Dimethyl phosphite	3.B.10	1	811		A
19-4-0022	Quinuclidin-3-ol	2.B.09	1	1193		A
19-4-0023	Bis(2-hydroxyethyl)sulfide	2.B.13	1	1186		B
19-4-0024	Diethyl phosphite	3.B.11	1	953		A
29-4-0001	2-Methyl-1,3,2-dithiaphosphinane-2-sulfide	2.B.04	1	1697		B
29-4-0002	2,4-Dimethyl-1,3,2-dithiaphospholane-2-sulfide	2.B.04	1	1628	1637	B
29-4-0003	Methyl 1-methylbut-3-enyl methylphosphonate	2.B.04	1	1152	1154	B
29-4-0004	Methyl 3-methylbut-3-enyl methylphosphonate	2.B.04	1	1207		B
29-4-0005	Methyl pent-4-enyl methylphosphonate	2.B.04	1	1225		B
29-4-0006	Methyl 3-methylbut-2-enyl methylphosphonate	2.B.04	1	1235		B
29-4-0007	Methyl 1-methylbut-2-enyl methylphosphonate	2.B.04	1	1164	1167	B
29-4-0008	1-Ethylprop-2-enyl methylphosphonate	2.B.04	1	1146	1151	B
29-4-0009	Methyl pent-2-enyl methylphosphonate	2.B.04	1	1229		B
29-4-0010	1,2-Dimethylprop-2-enyl methylphosphonate	2.B.04	1	1103		B

TABLE 4: LIST OF APPROVED IR DATA OF SCHEDULED CHEMICALS

OPCW Code	Chemical Name	Schedule	Decision
19-1-0032x	Ethylphosphonic dichloride	2.B.04	A
19-1-0033x	Propylphosphonic dichloride	2.B.04	A
19-1-0034x	3-Quinuclidinol	2.B.09	A
19-1-0035x	2-(N,N-Dimethylamino)ethyl chloride hydrochloride	2.B.10	A
19-1-0036x	2-(N,N-dimethylamino)ethanethiol hydrochloride	2.B.12	A
19-1-0037x	Bis(2-hydroxyethyl)sulfide	2.B.13	B
19-1-0038x	Diethyl phosphite	3.B.11	B
19-1-0039x	Ethyldiethanolamine	3.B.15	A

TABLE 5: LIST OF APPROVED IR DATA OF DERIVATIVES OF SCHEDULED CHEMICALS

OPCW Code	Chemical Name	Schedule	Associated Chemical Schedule	Decision
09-1-0013	N,N-Diisopropyl-(2-trimethylsilyloxyethyl)amine	DS	2.B.11	B
09-1-0015	N-Ethyl-N-methyl-(2-trimethylsilyloxyethyl)amine	DS	2.B.11	B
09-1-0016	N-Isopropyl-N-propyl-(2-trimethylsilyloxyethyl)amine	DS	2.B.11	B

Annex 2**LISTS OF APPROVED NON-SCHEDULED CHEMICAL DATA RELEVANT TO
THE CHEMICAL WEAPONS CONVENTION**

Note: In the last column of the tables that follow, “A” means “accepted”; “B” means “accepted subject to minor corrections”.

**TABLE 1: LIST OF APPROVED MS DATA OF NON-SCHEDULED CHEMICALS
RELEVANT TO THE CONVENTION**

OPCW Code	Chemical Name	Schedule	Decision
08-2-0128	1,5-Bis(2-heptafluorobutyryloxyethylthio)-n-pentane	NS	B

**TABLE 2: LIST OF APPROVED IR DATA OF NON-SCHEDULED CHEMICALS
RELEVANT TO THE CONVENTION**

OPCW Code	Chemical Name	Schedule	Decision
09-1-0014	N,N-Dimethyl-(2-trimethylsilyloxyethyl)amine	NS	A

Annex 3

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