

PHOSMET (103)

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EXPLANATION

Phosmet was evaluated for residues several times by the JMPR from 1976 to 1997. Additional residue information on citrus fruits, pears, nectarines and blueberries was evaluated by the JMPR in 2002. The 2002 JMPR estimated short-term intakes that exceeded the ARfD of 0.02 mg/kg bw for apple, blueberry, citrus fruit, nectarine and pear. The Meeting noted that the ARfD was conservative and might be refined.

A new ARfD of 0.2 mg/kg bw was established in 2003. The Meeting estimated short-term intakes that exceeded the ARfD for apple (230% children) and pear (150% children). No acute intake concern was estimated for the other commodities (JMPR Report 2003, p. 20 and p. 173).

At the 38th Session of the CCPR in 2006, the Committee noted the acute intake concerns expressed by Australia, the European Union and the USA. The Committee decided to return the draft MRLs for apricot, blueberries, citrus fruits, nectarine and pome fruits to Step 6 and decided to request JMPR to consider using alternative GAP to recommend lower MRLs for these commodities (FAO/WHO, 2006).

Data considering a different GAP and new supervised trials data were submitted to the 2007 JMPR for oranges, pome fruits and peaches. Furthermore, US monitoring data on apples and pears are provided.

USE PATTERN

Information on registered uses was reported to the Meeting and is shown in Table 1.

Table 1. Registered uses for phosmet

Crop	Country	Form.	Application					PHI days
			Method	Rate kg ai/ha	Spray conc. kg ai/hL	Water L/ha	No.	
Apricots	USA	70 WSB		1.75 - 3.4	1.0-1.2			14
Apples	Brazil	50 WP	Spraying	1	0.1	1000	2	14
Apples	USA	70 WSB	Spraying	1.7 - 4.1	1.2			7
Blueberries	USA	70 WSB	Spraying	1.0			1-2	3
Nectarines	USA	70 WSB	Spraying	1.7 – 3.3				14
Oranges	Brazil	50 WP	Spraying	1.5	0.075	2000	5	14
Oranges	Spain	50 WP	Spraying		0.075 – 0.125			30
Peaches	Brazil	50 WP	Spraying	0.6 – 0.8	0.075 – 0.1	800	3	7
Peaches	USA	70 WSB	Spraying	1.7 – 3.3				14
Pears	USA	70 WSB	Spraying	1.7 – 5.6				7
Pome fruits	Spain	50 WP	Spraying		0.075 – 0.125			30
Stone fruit (peaches, apricots, nectarines)	Spain	50 WP	Spraying		0.075 – 0.125			30

RESIDUES RESULTING FROM SUPERVISED TRIALS ON CROPS

The Meeting received new information on supervised field trials on oranges, apples, pears and peaches. Residue data are reported in Tables 2 – 7.

Because of the low phosmet oxon residues detected (< 10% of parent), the 1997 JMPR decided that the definition of the residue for compliance with the MRL and for the estimation of dietary intake is phosmet.

Where residues were not detected, data are recorded in the Tables as below the LOQ. Residue data have generally been rounded to 2 significant figures or, for residues near the LOQ, to 1 significant figure. Although trials included control plots, no control data are recorded except where residues in control samples exceeded the LOQ. Residues are recorded unadjusted for procedural recoveries. Double-underlined residues are from treatments according to GAP.

Table 2. Phosmet residues in oranges from supervised trials in Brazil

Location, region, year, variety, report no, author	Application						Commodity analysed	PHI (days)	Residues (mg/kg)
	Form	kg ai/ha	Water L/ha	kg ai/hL	No.	Date			
Piedade, Sao Paulo, 2002, Baia, 002R/02, Doc. No. 632-0422, De Oliveira, 2002a	500 WP	2	2000	0.1	5	21/04/2002	Whole fruit	10	1.3
						01/05/2002			
						11/05/2002			
						21/05/2002			
						31/05/2002			
Piedade, Sao Paulo, 2002, Baia, 002R/02, Doc. No. 632-0422, De Oliveira, 2002a	500 WP	4	2000	0.2	5	21/04/2002	Whole fruit	10	2.2
						01/05/2002			
						11/05/2002			
						21/05/2002			
						31/05/2002			

Table 3. Phosmet residues in apples from supervised trials in Europe, last treatment BBCH 78 – 87

Location, region, country, year, variety, report no, author	Application						Commodity analysed	PHI (days)	Residues (mg/kg)	
	Form	kg ai/ha	Water L/ha	kg ai/hL	No.	Date				
Ademuz, Valencia, Spain, 2001, Starking, Doc. No. 632-2006, TRC01-2R1, A1214 01, Faessel, 2003a	500 WP	1.89	1510	0.125	3	19/07/2001	Whole fruit	0	3.8	
			1550	0.125		10/08/2001		7	2.1	
			1513	0.125		31/08/2001		14	0.96	
	Juice	14	0.28							
Ademuz, Valencia, Spain, 2001, Esperiega, Doc. No. 632-2006, TRC01-2R2, A1214 02, Faessel, 2003a	500 WP	1.88	1503	0.125	3	21/08/2001	Whole fruit	0	0.44	
			1510	0.125		11/09/2001		7	2.2	
			1480	0.125		02/10/2001		14	1.3	
	Jam	21	0.47							
Almacelles, Lerida, Spain, 2001, Golden, Doc. No. 632-2006, TRC01-2R3, A1214 03, Faessel, 2003a	500 WP	1.53	1221	0.125	3	28/06/2001	Whole fruit	0	0.70	
			1188	0.125		19/07/2001		14	0.11	
			1195	0.125		09/09/2001		21	0.06	
	Jam	14	< 0.002							
Sudanell, Lerida, Spain, 2001, Gala, Doc. No. 632-2006, TRC01-2R4, A1214 04, Faessel, 2003a	500 WP	1.52	1218	0.125	3	28/06/2001	Whole fruit	0	0.23	
			1185	0.125		20/07/2001		14	0.09	
			1227	0.125		09/08/2001		21	< 0.05	
	Juice	14	< 0.05							

Location, region, country, year, variety, report no, author	Application						Commodity analysed	PHI (days)	Residues (mg/kg)
	Form	kg ai/ha	Water L/ha	kg ai/hL	No.	Date			
Gualta, Girona, Spain, 2001, Galaxy, Doc. No. 632-2006, TRC01-2R9, A1214 05, Faessel, 2003a	500 WP	1.58	1265	0.125	3	19/06/2001	Whole fruit	0	2.2
		1.59	1276	0.125		10/07/2001		7	1.4
		1.60	1285	0.125		31/07/2001		14	0.78
								21	<u>0.26</u>
							Juice	14	0.32
Fontanilles, Girona, Spain, 2001, Red One, Doc. No. 632-2006, TRC01-2R11, A1214 07, Faessel, 2003a	500 WP	1.57	1219	0.125	3	02/07/2001	Whole fruit	0	3.3
		1.50	1155	0.125		23/07/2001		14	0.42
		1.59	1250	0.125		13/08/2001		21	<u>0.31</u>
							Jam	14	< 0.002
							Juice	21	< 0.05
Alginet, Valencia, Spain, 2002, Royal Gala, Doc. No. 632-2008, TRC01-2R8, A2114404, Delgado, 2003a; Doc. No. 632-2007, Serrano, 2003a	500 WP	2.30	1844	0.125	3	03/05/2002	Whole fruit	0	4.5
		2.25	1800	0.125		24/05/2002		14	0.94
		2.33	1867	0.125		14/06/2002		14	0.07
							Juice	14	0.07
Ademuz, Valencia, Spain, 2002, Starking, Doc. No. 632-2008, TRC01-2R14, A214406, Delgado, 2003a; Doc. No. 632-2007, Serrano, 2003a	500 WP	2.30	1840	0.125	3	10/07/2002	Whole fruit	0	4.2
		2.38	1904	0.125		31/07/2002		7	1.8
		2.42	1916	0.125		21/07/2002		14	2.0
								21	<u>0.83</u>
							Jam	14	< 0.05
Ademuz, Valencia, Spain, 2002, Esperiega, Doc. No. 632-2008, TRC01-2R15, A214407, Delgado, 2003a; Doc. No. 632-2007, Serrano, 2003a	500 WP	1.97	1580	0.125	3	13/08/2002	Whole fruit	0	2.4
		2.0	1600	0.125		03/09/2002		14	1.9
		1.97	1580	0.125		24/09/2002		21	<u>1.8</u>
							Jam	14	< 0.05
							Juice	21	< 0.05
Catarroja, Valencia, Spain, 2002, Anna, Doc. No. 632- 2008, TRC01-2R5, A214401, Delgado, 2003a; Doc. No. 632-2007, Serrano, 2003a	500 WP	1.91	1529	0.125	3	19/04/2002	Whole fruit	0	4.1
		1.94	1557	0.125		10/05/2002		7	1.5
		1.87	1500	0.125		31/05/2002		14	1.1
								21	<u>0.92</u>
							Juice	21	0.12
Catarroja, Valencia, Spain, 2002, Anna, Doc. No. 632- 2008, TRC01-2R6, A214402, Delgado, 2003a; Doc. No. 632-2007, Serrano, 2003a	500 WP	2.19	1756	0.125	3	24/04/2002	Whole fruit	0	2.9
		2.28	1822	0.125		15/05/2002		7	1.5
		2.29	1830	0.125		05/06/2002		14	0.48
								21	<u>0.32</u>
							Jam	14	< 0.05
Ponferrada, Spain, 2003, Golden Delicious, MRG 064/033721, Trial MRG/064-01, Doc. No. 632-2010, Farrell, 2004	500 WP	0.30	999	0.03	1	08/08/2003	Whole fruit	0	0.14
Ponferrada, Spain, 2003, Reineta, MRG 064/033721, Trial MRG/064-02, Doc. No. 632-2010, Farrell, 2004	500 WP	0.31	1044	0.03	1	08/08/2003	Whole fruit	0	0.18

Location, region, country, year, variety, report no, author	Application						Commodity analysed	PHI (days)	Residues (mg/kg)
	Form	kg ai/ha	Water L/ha	kg ai/hL	No.	Date			
Vertemate Con Minoprio, Italy, 2003, Golden Delicious, MRG 064/033721, Trial MRG/064-03, Doc. No. 632-2010, Farrell, 2004	500 WP	0.32	1068	0.03	1	20/08/2003	Whole fruit	0 27	0.22 0.02
Tresivio, Italy, 2003, Golden Delicious, MRG 064/033721, Trial MRG/064-04, Doc. No. 632-2010, Farrell, 2004	500 WP	0.31	1041	0.03	1	28/08/2003	Whole fruit	0 28	0.17 0.01
Grenade sur Garonne, Midi-Pyrenees, France, 2004, Golden, Doc. No. 632-2037, Simek, 2006	500 WP	1.33 1.33	1067 1067	0.125 0.125	2	16/08/2004 26/08/2004	Fruit	0 7 14 28	1.2 1.7 0.66 <u>0.41</u>
Gualta, Catalonia, Spain, 2004, Brookfield Gala, Doc. No. 632-2037, Simek, 2006	500 WP	1.17 1.17	934 934	0.125 0.125	2	19/07/2004 29/07/2004	Fruit	14	0.36
Makrochori, Imathia, Greece, 2004, Granny Smith, Doc. No. 632-2037, Simek, 2006	500 WP	1.31 1.24	1050 988	0.125 0.125	2	24/08/2004 03/09/2004	Fruit	14	0.35
Montemarzino, Piemonte, Italy, 2004, Golden, Doc. No. 632-2037, Simek, 2006	500 WP	1.38 1.27	1101 1012	0.125 0.125	2	13/08/2004 23/08/2004	Fruit	0 7 14 29	1.9 1.4 0.76 <u>0.34</u>
Bovolone, Verona/Veneto, Italy, 2004, Golden, PS1/ME/I-06, Doc. No. 632-2009, Domenichini, 2006	200 EC	0.96 0.93 0.91	1063 1033 1014	0.09 0.09 0.09	3	30/07/2004 09/08/2004 19/08/2004	Fruit	15	< 0.05

Table 4. Phosmet residues in apples from supervised trials in Brazil, last treatment BBCH 85

Location, region, country, year, variety, report no, author	Application						Commodity analysed	PHI (days)	Residues (mg/kg)
	Form	kg ai/ha	Water L/ha	kg ai/hL	No.	Date			
Sao Joaquim, Santa Catarina, Brazil, 2005, Fuji, RF/0011.34.064.05, 23424, RAG.0113/05, Doc. No. 632-2041, Tornisielo, 2005a	500 WP	1	1000	0.1	5	28/01/2005 11/02/2005 25/02/2005 11/03/2005 24/03/2005	Whole fruit	7	0.88
Sao Joaquim, Santa Catarina, Brazil, 2005, Fuji, RF/0011.34.064.05, 23424, RAG.0114/05, Doc. No. 632-2041, Tornisielo, 2005a	500 WP	2	1000	0.2	5	28/01/2005 11/02/2005 25/02/2005 11/03/2005 24/03/2005	Whole fruit	7	2.1
Farrroupilha, Rio Grande do Sul, Brazil, 2006, Fuji, RF/0011.34.047.06, 23425, RAG.0224/06, Doc. No. 632-2042, Lopez, 2006a	500 WP	1	1000	0.1	5	27/01/2006 10/02/2006 24/02/2006 10/03/2006 24/03/2006	Whole fruit	7	0.97

Location, region, country, year, variety, report no, author	Application						Commodity analysed	PHI (days)	Residues (mg/kg)
	Form	kg ai/ha	Water L/ha	kg ai/hL	No.	Date			
Farrroupilha, Rio Grande do Sul, Brazil, 2006, Fuji, RF/0011.34.047.06, 23425, RAG.0225/06, Doc. No. 632-2042, Lopez, 2006a	500 WP	2	1000	0.2	5	27/01/2006 10/02/2006 24/02/2006 10/03/2006 24/03/2006	Whole fruit	7	2.5
Vacaria, Rio Grande do Sul, Brazil, 2005, Fuji, RF/0011.34.062.05, 23427, RAG.0095/05, Doc. No. 632-2044, Tornisielo, 2005b	500 WP	1	1000	0.1	5	07/01/2005 21/01/2005 04/02/2005 18/02/2005 04/03/2005	Whole fruit	7	0.73
Vacaria, Rio Grande do Sul, Brazil, 2005, Fuji, RF/0011.34.062.05, 23427, RAG.0096/05, Doc. No. 632-2044, Tornisielo, 2005b	500 WP	2	1000	0.2	5	07/01/2005 21/01/2005 04/02/2005 18/02/2005 04/03/2005	Whole fruit	7	3.8
Cambe, Parana, Brazil, 2005, Eva, RF/0011.34.062.05, 23426, RAG.0051/06, Doc. No. 632-2043, Lopez, 2006b	500 WP	1	1000	0.1	5	28/09/2005 12/10/2005 26/10/2005 09/11/2005 23/11/2005	Whole fruit	7	< 0.5
Cambe, Parana, Brazil, 2005, Eva, RF/0011.34.062.05, 23426, RAG.0052/06, Doc. No. 632-2043, Lopez, 2006b	500 WP	2	1000	0.2	5	28/09/2005 12/10/2005 26/10/2005 09/11/2005 23/11/2005	Whole fruit	7	< 0.5
Palmas, Parana, Brazil, 2002, Royal Gala, 23428, 001/R02a, Doc. No. 632-2040, De Oliveira, 2002b	500 WP	1	1000	0.1	3	02/02/2002 16/02/2002 02/03/2002	Whole fruit	7	0.2
Palmas, Parana, Brazil, 2002, Royal Gala, 23428, 001/R02b, Doc. No. 632-2040, De Oliveira, 2002b	500 WP	2	1000	0.2	3	02/02/2002 16/02/2002 02/03/2002	Whole fruit	7	0.2

Table 5. Phosmet residues in pears from supervised trials in Europe, last treatment BBCH 78 – 83

Location, region, country, year, variety, report no, author	Application						Commodity analysed	PHI (days)	Residues (mg/kg)
	Form	kg ai/ha	Water L/ha	kg ai/hL	No.	Date			
Gualta, Girona, Spain, 2001, General Leclerck, Doc. No. 632-2006, TRC01-2R10, A1214 06, Faessel, 2003a	500 WP	1.52	1254	0.125	3	19/06/2001	Whole fruit	0	1.3
		1.44	1202	0.125		10/07/2001		7	2.3
		1.56	1268	0.125		31/07/2001		14	1.4
								21	<u>0.79</u>
						Jam	21	< 0.002	
Fontanilles, Girona, Spain, 2001, Conference, TRC01-2R12, A1214 08, Doc. No. 632-2006, Faessel, 2003a	500 WP	1.51	1211	0.125	3	19/06/2001	Whole fruit	0	2.5
		1.59	1270	0.125		10/07/2001		14	1.1
		1.61	1289	0.125		31/07/2001			
						Juice	14	0.12	

Location, region, country, year, variety, report no, author	Application						Commodity analysed	PHI (days)	Residues (mg/kg)
	Form	kg ai/ha	Water L/ha	kg ai/hL	No.	Date			
Jumilla, Murcia, Spain, 2002, Ercolini, TRC01- 2R13, A214405, Doc. No. 632-2008, Delgado, 2003a; Doc. No. 632-2007, Serrano, 2003a	500 WP	1.50	1201	0.125	3	09/05/2002	Whole fruit	0	3.9
		1.53	1225	0.125		30/05/2002		7	0.33
		1.52	1213	0.125		20/06/2002		14	0.43
							Juice	21	<u>0.07</u> < 0.05
Vilablareix, Girona, Spain, 2002, Passacassana, TRC01- 2R16, A214408, Doc. No. 632-2008, Delgado, 2003a; Doc. No. 632-2007, Serrano, 2003a	500 WP	1.54	1229	0.125	3	02/08/2002	Whole fruit	0	1.4
		1.46	1167	0.125		23/08/2002		14	0.95
		1.54	1229	0.125		13/09/2002		14	0.14
							Juice	14	0.14
Alborache, Valencia, Spain, 2002, Ercolini, TRC01-2R7, A214403, Doc. No. 632-2008, Delgado, 2003a; Doc. No. 632-2007, Serrano, 2003a	500 WP	2.29	1830	0.125	3	24/04/2002	Whole fruit	0	3.4
		2.31	1848	0.125		15/05/2002		14	0.53
		2.36	1886	0.125		05/06/2002		21	<u>0.16</u>
							Jam	14	< 0.05
							Juice	21	0.12
Roverchiara, Verona/Veneto, Italy, 2004, Abate Fetel, PS1/PR/I-02, Doc. No. 632-2009, Domenichini, 2006	200 EC	0.94	1042	0.09	3	30/07/2004	Fruit	15	0.1
		0.90	1004	0.09		09/08/2004			
		0.91	1008	0.09		19/08/2004			

Table 6. Phosmet residues in peaches and nectarines from supervised trials in Spain, last treatment BBCH 77 – 83

Location, region, country, year, variety, report no, author	Application						Commodity analysed	PHI (days)	Residues (mg/kg)
	Form	kg ai/ha	Water L/ha	kg ai/hL	No.	Date			
Turis, Valencia, Spain, 2001, Peaches Sterman, TRC01-1R1, Doc. No. 632- 3204, Faessel, 2003b; Doc. No. 632-3205, Serrano, 2003b; Doc. No. 632-3207, Delgado, 2003b	500 WP	1.98	1588	0.125	2	19/04/2001	Whole fruit	0	4.5
		2.01	1613	0.125		03/05/2001		7	3.9
								14	2.6
							Juice	21	<u>0.42</u>
							Juice	14	0.75
Carlet, Valencia, Spain, 2001, Nectarines Siver King, TRC01-1R2, Doc. No. 632-3204, Faessel, 2003b; Doc. No. 632-3205, Serrano, 2003b; Doc. No. 632-3207, Delgado, 2003b	500 WP	1.61	1291	0.125	2	26/04/2001	Whole fruit	0	3.3
		1.62	1294	0.125		10/05/2001		7	1.9
								14	2.3
							Jam	21	<u>0.31</u>
							Jam	14	0.92

Location, region, country, year, variety, report no, author	Application						Commodity analysed	PHI (days)	Residues (mg/kg)
	Form	kg ai/ha	Water L/ha	kg ai/hL	No.	Date			
Confrentes, Valencia, Spain, 2001, Peaches Carrasco de Cofrentes, TRC01-1R3, Doc. No. 632-3204, Faessel, 2003b; Doc. No. 632-3205, Serrano, 2003b; Doc. No. 632-3207, Delgado, 2003b	500	1.77	1415	0.125	2	30/97/2001	Whole fruit	0	4.1
	WP	1.74	1392	0.125		13/08/2001		14	1.8
								21	<u>1.5</u>
							Jam	14	< 0.05
							Juice	21	1.5
Jalance, Valencia, Spain, 2001, Peaches Cofrentes, TRC01-1R4, Doc. No. 632- 3204, Faessel, 2003b; Doc. No. 632-3205, Serrano, 2003b; Doc. No. 632-3207, Delgado, 2003b	500	1.9	1517	0.125	2	06/08/2001	Whole fruit	0	8.3
	WP	1.89	1511	0.125		20/08/2001		14	4.0
							Juice	14	1.2
Carlet, Valencia, Spain, 2002, Peaches Sprint crest, TRC01-1R5, Doc. No. 632-3210, Faessel, 2003c; Doc. No. 632-3205, Serrano, 2003b; Doc. No. 632-3207, Delgado, 2003b	500	2.14	1712	0.125	2	15/04/2002	Whole fruit	0	7.7
	WP	2.18	1743	0.125		29/04/2002		7	4.1
								14	0.83
								21	<u>0.34</u>
							Juice	21	0.11
Pobla des Duc, Valencia, Spain, 2002, Nectarines 2000, TRC01-1R7, Doc. No. 632-3210, Faessel, 2003c; Doc. No. 632-3205, Serrano, 2003b; Doc. No. 632-3207, Delgado, 2003b	500	1.63	1309	0.125	2	28/05/2002	Whole fruit	0	2.1
	WP	1.64	1312	0.125		10/06/2002		14	1.1
								21	<u>0.71</u>
							Jam	14	< 0.05
							Juice	21	0.08
Villar del Arzobispo, Valencia, Spain, 2002, Peaches Maluenda, TRC01- 1R8, Doc. No. 632-3210 Faessel, 2003c; Doc. No. 632-3205, Serrano, 2003b; Doc. No. 632-3207, Delgado, 2003b	500	2.29	1831	0.125	2	02/09/2002	Whole fruit	0	3.3
	WP	2.29	1835	0.125		16/09/2002		14	1.1
							Juice	14	1.6
Jumilla, Murcia, Spain, 2002, Peaches Sprint Lady, TRC01-1R6, Doc. No. 632- 3210, Faessel, 2003c; Doc. No. 632-3205, Serrano, 2003b; Doc. No. 632-3207, Delgado, 2003b	500	1.97	1580	0.125	2	18/04/2002	Whole fruit	0	8.4
	WP	2.02	1620	0.125		02/05/2002		7	3.7
								14	0.91
								21	<u>0.37</u>
							Jam	14	0.41

Table 7. Phosmet residues in peaches and nectarines from supervised trials in Brazil, last treatment BBCH 85

Location, region, country, year, variety, report no, author	Application						Commodity analysed	PHI (days)	Residues (mg/kg)
	Form	kg ai/ha	Water L/ha	kg ai/hL	No.	Date			
Piedade, Sao Paulo, Brazil, 2000, Peaches Natal, R.14/00, 23421, Doc. No. 632-3216, Tornisielo, 2000a	500 WP	0.85	850	0.1	3	18/01/2000 25/01/2000 01/02/2000	Fruit	7	<u>2.7</u>
Piedade, Sao Paulo, Brazil, 2000, Peaches Natal, R.14/00, 23421, Doc. No. 632-3216, Tornisielo, 2000a	500 WP	1.6	850	0.2	3	18/01/2000 25/01/2000 01/02/2000	Fruit	7	2.8
Lavras, Mato Grosso, Brazil, 2000, Peaches Bolao, R.15/00, 23422, AM 162/00 1002, Doc. No. 632-3217, Tornisielo, 2000b	500 WP	0.85	850	0.1	3	18/01/2000 25/01/2000 01/02/2000	Fruit	7	<u>0.5</u>
Lavras, Mato Grosso, Brazil, 2000, Peaches Bolao, R.15/00, 23422, AM 163/001, Doc. No. 632-3217, Tornisielo, 2000b	500 WP	1.7	850	0.2	3	18/01/2000 25/01/2000 01/02/2000	Fruit	7	1.5
Barbacena, Minas Gerais, Brazil, 2000, Peaches Bolao, R.16/00, 23423, AM 155/001, Doc. No. 632-3218, Tornisielo, 2000c	500 WP	0.85	850	0.1	3	25/01/2000 01/02/2000 08/02/2000	Fruit	0	2.5
Barbacena, Minas Gerais, Brazil, 2000, Peaches Bolao, R.16/00, 23423, AM 156/001, Doc. No. 632-3218, Tornisielo, 2000c	500 WP	0.85	850	0.1	3	18/01/2000 25/01/2000 01/02/2000	Fruit	7	<u>1.0</u>
Barbacena, Minas Gerais, Brazil, 2000, Peaches Bolao, R.16/00, 23423, AM 157/001, Doc. No. 632-3218, Tornisielo, 2000c	500 WP	0.85	850	0.1	3	11/01/2000 18/01/2000 25/01/2000	Fruit	14	0.48
Barbacena, Minas Gerais, Brazil, 2000, Peaches Bolao, R.16/00, 23423, AM 158/001, Doc. No. 632-3218, Tornisielo, 2000c	500 WP	0.85	850	0.1	3	04/01/2000 11/01/2000 18/01/2000	Fruit	21	0.33
Barbacena, Minas Gerais, Brazil, 2000, Peaches Bolao, R.16/00, 23423, AM 159/001, Doc. No. 632-3218, Tornisielo, 2000c	500 WP	0.85	850	0.1	3	28/12/1999 04/01/2000 11/01/2000	Fruit	28	0.15
Barbacena, Minas Gerais, Brazil, 2000, Peaches Bolao, R.16/00, 23423, AM 160/00 1002, Doc. No. 632-3218, Tornisielo, 2000c	500 WP	1.7	850	0.2	3	18/01/2000 25/01/2000 01/02/2000	Fruit	7	1.9

RESIDUES IN FOOD IN COMMERCE OR AT CONSUMPTION

The Meeting received US monitoring data for phosmet in apples and pears covering the time between 1992 and 2005 where phosmet was registered in the US. Maximum residues in apples were 0.9 mg/kg and in pears 1.8 mg/kg. The results are summarized in Table 8 (US Pesticide Data Program).

Table 8. Results of the US monitoring program for phosmet in apples and pears, 1992 – 2005

Commodity	Year	Number of samples analysed	Samples with residues	Residues detected (mg/kg)
Apples	1992 - 2005	6096	609	0.008 – 0.9
Pears	1997 - 2005	2800	525	0.008 – 1.8

APPRAISAL – RESIDUE AND ANALYTICAL ASPECTS

Phosmet has been evaluated several times for residues by the JMPR from 1976 to 1997. Additional residue information on citrus fruits, pears, nectarines and blueberries was evaluated by the JMPR in 2002. The 2002 JMPR estimated short-term intakes that exceeded the ARfD of 0.02 mg/kg bw for apple, blueberry, citrus fruits, nectarine and pear. The Meeting noted that the ARfD of 0.02 mg/kg bw was conservative and might be refined.

A new ARfD of 0.2 mg/kg bw was established in 2003. The Meeting estimated short-term intakes that exceeded the ARfD for apple (230% children) and pear (150% children). No acute intake concern was estimated for the other commodities (JMPR Report 2003, p. 20 and p. 173).

At the 38th Session of the CCPR in 2006, the Committee noted the acute intake concerns expressed by Australia, the European Union and the USA. The Committee decided to return the draft MRLs for apricot, blueberries, citrus fruit, nectarine and pome fruits to Step 6 and decided to request JMPR to consider using alternative GAP to recommend lower MRLs for these commodities.

New data for GAP and new supervised residue trials were submitted to the 2007 JMPR for pome fruits. New supervised residue trials data were also submitted for oranges and peaches.

Results of supervised residue trials on crops

Data from new supervised trials on oranges, apples, pears and peaches/nectarines were evaluated. Furthermore, data on citrus fruits, apricots/peaches/nectarines and blueberries which were reviewed in the 1997 and 2002 monographs were interpreted by the current Meeting in the light of the acute intake concerns expressed at the 38th Session of CCPR.

Citrus fruits

In Brazil, phosmet may be used on citrus fruits at 1.5 kg ai/ha and 0.075 kg ai/hL with a PHI of 14 days.

Two Brazilian trials on oranges carried out in 2002 were submitted to the current Meeting. In one Brazilian trial where phosmet was used five times at 2 kg ai/ha and 0.1 kg ai/hL with a PHI of 10 days, the residue found was 1.3 mg/kg. In the second trial (5 × 4 kg ai/ha, 0.2 kg ai/hL with a PHI of 10 days), the residue was 2.2 mg/kg. The Meeting noted that the field trial application rates did not match the GAP rates; as a consequence the residue data could not be used.

Phosmet is registered in Spain for use on citrus fruits at 0.075 – 0.15 kg ai/hL with a PHI of 30 days.

The 2002 JMPR estimated a maximum residue level and an STMR for phosmet in citrus fruits of 3 mg/kg and 0.64 mg/kg (whole fruit) on the basis of 16 residue supervised trials data for mandarins, tangerines and oranges matching the Spanish GAP. Furthermore, STMR and HR values for phosmet in citrus edible portion of 0.21 and 0.52 mg/kg were estimated.

The current Meeting noted that the acute dietary risk assessment for phosmet, as presented in the 2003 JMPR Report (ARfD: 0.2 mg/kg bw), is unlikely to present a public health concern for citrus ($\leq 10\%$ for children and the general population). Therefore, it is not necessary to retrospectively consider an alternative GAP for citrus fruits.

The Meeting estimated a maximum residue level of 3 mg/kg, confirming the previous recommendation, and an STMR and HR of 0.21 and 0.52 mg/kg for citrus edible portion.

Pome fruits

Phosmet is registered in the USA for use on apples at 1.7 – 4.1 kg ai/ha and on pears at 1.7 – 5.6 kg ai/ha with a PHI of 7 days.

Based on US residue trials and the US GAP, the 2002 JMPR estimated a maximum residue level, an STMR and an HR value for phosmet in pome fruits of 10, 3.3 and 7.3 mg/kg, respectively. The 2003 Meeting estimated short-term intakes that exceeded the ARfD of 0.2 mg/kg bw for apple (230% for children) and pear (150% for children).

New GAP data on pome fruit from Brazil and Spain were submitted to the 2007 JMPR. The Meeting also received new supervised residue trial data on apples and pears from Brazil, Spain, France and Italy.

Phosmet is registered in Brazil for use on apples at two applications of 1 kg ai/ha at 0.1 kg ai/hL with a PHI of 14 days.

Ten apple trials were carried out in Brazil from 2002–2006 ($5 \times 1 - 2$ kg ai/ha, at 0.1 – 0.2 kg ai/hL, PHI 7 days) however, none matched the Brazilian GAP.

Phosmet is registered in Spain for use on pome fruits at 0.075 – 0.125 kg ai/hL with a PHI of 30 days.

In one French and one Italian trial on apples in 2004 (2×0.125 kg ai/hL, PHI 28 or 29 days) matching Spanish GAP, the residues were 0.34 and 0.41 mg/kg.

In Spain, residue trials were carried out from 2001 to 2002 on apples and pears with three applications of 0.125 kg ai/hL and a PHI of 21 days. The residues in apples were 0.06, 0.26, 0.31, 0.32, 0.47, 0.83, 0.92, 1.3 and 1.8 mg/kg. The residues in pears were 0.07, 0.16 and 0.79 mg/kg. The Meeting noted that the PHI of 21 days was shorter than the registered 30 days but considered the trials for evaluation as they were within $\pm 30\%$ of the GAP.

The Meeting decided to combine the European apple and pear data for pome fruit. The combined pome fruit data (14 values), in ranked order were: 0.06, 0.07, 0.16, 0.26, 0.31, 0.32, 0.34, 0.41, 0.47, 0.79, 0.83, 0.92, 1.3 and 1.8 mg/kg.

Based on the alternative GAP from Spain and new residue supervised trials data from Spain, Italy and France, the Meeting estimated a maximum residue level of 3 mg/kg for phosmet in pome fruit to replace the previous recommendation of 10 mg/kg.

The Meeting estimated an STMR and an HR for phosmet in pome fruits of 0.38 and 1.8 mg/kg.

Apricots and nectarines

The previous MRL recommendation was based on the GAP of the USA and USA residue data. New GAP data on peaches from Brazil and on stone fruit from Spain were submitted to the 2007 JMPR. The Meeting also received new supervised residue trial data on peaches and nectarines from Brazil and Spain.

Phosmet is registered in Brazil for use on peaches at three applications of 0.6 – 0.8 kg ai/ha and 0.075 – 0.1 kg ai/hL with a PHI of 7 days.

Ten trials on peaches and nectarines were carried out in 2000 in Brazil but only three of them matched GAP. Residues of phosmet were 0.5, 1.0 and 2.7 mg/kg.

Phosmet is registered in Spain for use on stone fruits at 0.075 – 0.125 kg ai/hL with a PHI of 30 days.

In Spain, residue trials were carried out in 2001 and 2002 on peaches and nectarines with two applications of 0.125 kg ai/hL and a PHI of 21 days. The residues were 0.31, 0.34, 0.37, 0.42, 0.71 and 1.5 mg/kg. The Meeting noted that the PHI of 21 days was shorter than the registered 30 days but considered the trials for evaluation as they were within $\pm 30\%$ of the GAP.

Phosmet is registered in the USA for use on apricots, peaches and nectarines at 1.7 – 3.3 kg ai/ha with a PHI of 14 days.

The 1997 JMPR estimated a maximum residue level, an STMR and an HR value for phosmet in apricots of 10, 1.6 and 6.8 mg/kg, respectively, based on US residue data for peaches and apricots matching the US GAP. No maximum residue level was estimated for nectarines.

The 2002 JMPR noted that the GAP reported for peaches and apricots in the evaluation by the 1997 JMPR was the same as for nectarines. The 2002 Meeting agreed that the residues trials reported for peaches and apricots could be used to support a recommendation for nectarines. The Meeting estimated a maximum residue level, an STMR and an HR value for phosmet in nectarines of 10, 1.6 and 6.8 mg/kg, respectively, based on US residue data for peaches and apricots matching the US GAP.

Based on the estimations of the 1997 and 2002 Meetings, the 2007 JMPR noted that the acute dietary risk assessment for phosmet, as presented in the 2003 JMPR Report, shows an acceptable consumer risk for apricots (ARfD: 0.2 mg/kg bw per day - general population 20%, children 90%) and nectarines (general population 40%, children 100%). Therefore, it was deemed unnecessary to retrospectively consider an alternative GAP for both commodities. The current Meeting confirmed the recommendation by the 2002 JMPR.

The Meeting estimated a maximum residue level of 10 mg/kg which confirms the previous recommendation, and an STMR and HR of 1.6 and 6.8 mg/kg for apricots and nectarines.

Blueberries

US GAP permits application of phosmet to blueberries at 1 kg ai/ha and harvest 3 days after the final application.

Based on nine US residue trials, matching the GAP of the USA, the 2002 JMPR estimated a maximum residue level, an STMR value and an HR value for phosmet in blueberries of 15, 4.0 and 9.9 mg/kg, respectively.

The current Meeting noted that the acute dietary risk assessment for phosmet, which is presented in the 2003 JMPR Report (ARfD: 0.2 mg/kg bw per day), shows an acceptable consumer risk for blueberries (general population 10%, children 40%). Therefore, it was deemed unnecessary to retrospectively consider an alternative GAP for blueberries.

The Meeting estimated a maximum residue level of 15 mg/kg which confirms the previous recommendation, and an STMR and HR of 4.0 and 9.9 mg/kg for blueberries.

RECOMMENDATIONS

On the basis of the data from supervised trials, the Meeting concluded that the residue concentrations listed below are suitable for establishing MRLs and for assessing IEDIs and IESTIs.

Definition of the residue:

For compliance with MRLs and for estimation of dietary intake: Phosmet.

Commodity		MRL, mg/kg		STMR or STMR-P, mg/kg	HR or HR-P, mg/kg
CCN	Name	New	Previous		
FS 0240	Apricot	10	10	1.6	6.8
FB 0020	Blueberries	15	15	4.0	9.9
FC 0001	Citrus fruits	3	3	0.21	0.52
FS 0245	Nectarine	10	10	1.6	6.8
FP 0230	Pome fruit	3	10	0.38	1.8

DIETARY RISK ASSESSMENT

Long-term intake

The estimates of long-term dietary intake for phosmet (ADI 0 – 0.01 mg/kg bw) calculated by the JMPR in 2002 for the five regional diets were 5 – 40% of the ADI. Because the STMR for pome fruit has changed, the dietary intakes were recalculated by the current Meeting for the 13 GEMS/Food Consumption Cluster Diets on the basis of the STMRs estimated by the JMPR in 2002 (cotton seed, grapes, peach, potato, tree nuts) and 2007 (apricot, blueberries, citrus fruits, nectarine, pome fruit). The results are shown in Annex 3 of the 2007 JMPR Report.

The International Estimated Daily Intakes (IEDI) of phosmet, based on estimated STMRs were 2 – 90% of the maximum ADI (0.01 mg/kg bw). The Meeting concluded that the long-term intake of residues of phosmet from uses considered by the JMPR is unlikely to present a public health concern.

Short-term intake

The International Estimated Short Term Intake (IESTI) of phosmet was calculated for the commodities for which residue levels were estimated. The results are shown in Annex 4 of the 2007 Report of the JMPR.

The IESTI of phosmet calculated on the basis of the recommendations made by the 2007 JMPR represented 0 – 100% of the ARfD (0.2 mg/kg bw) for children and 1 – 50% for the general population. The Meeting concluded that the short-term intake of residues of phosmet resulting from uses considered by the JMPR is unlikely to present a public health concern.

REFERENCES

Code	Author	Year	Title, Institute, Report reference
Doc. No. 632-2008	Delgado, C.S.	2003a	Determination of Phosmet residues in pome fruits, following three applications with IMIDAN-50WP, during 2001 and 2002 in Spain; TrialCamp, Spain. Doc. No. 632-2008. Unpublished.
Doc. No. 632-3207	Delgado, C.S.	2003b	Determination of Phosmet residues in stone fruits, following two applications with IMIDAN-50WP, during 2001 and 2002 in Spain; TrialCamp, Spain. Doc. No. 632-3207. Unpublished.
Doc. No. 632-0422	De Oliveira L.A.B., Piffer R., Garozi M.J. and Esteves A. J. P.	2002a	Relatório de estudo de resíduo de Fosmet (Phosmet) em citros (casca + polpa) após aplicação de IMIDAN 500 WP. Doc. No. 632-0422. Unpublished.
Doc. No. 632-2040	De Oliveira L.A.B., Piffer R., Garozi M.J. and Esteves A. J. P.	2002b	Relatório de estudo de resíduo de Fosmet (Phosmet) em maçã (casca + polpa) após aplicação de IMIDAN 500 WP. Doc. No. 632-2040. Unpublished.
Doc. No. 632-2009	Domenichini, P.	2006	Determination of residual concentration of SIP 50665 (Phosmet 200 g/L) EC in raw agricultural commodity apple and pear treated in the field trials in Italy 2004. Doc. No. 632-2009. Unpublished.
	FAO/WHO	2006.	ALINORM 06/29/24. Joint FAO/WHO Food Standard Programme, Codex Alimentarius Commission, 29 th Session, Geneva Switzerland, 3 – 7 July 2006. Report of the 38 th Session of the Codex Committee on

Code	Author	Year	Title, Institute, Report reference
			Pesticide Residues, Fortaleza, Brazil, 3 – 8 April 2006, para 89 and 90.
Doc. No. 632-2006.	Faessel, V	2003a.	Analytical report - Determination of residues of Phosmet and Phosmet-oxon in pome fruits, following three applications with IMIDAN-50WP, during 2001 in Spain; Anadiag, France. Doc. No. 632-2006. Unpublished.
Doc. No. 632-3204	Faessel, V.	2003b.	Analytical report - Determination of residues of Phosmet and Phosmet-oxon in stone fruits, following two treatments with IMIDAN-50WP, during 2001 in Spain; Anadiag, France. Doc. No. 632-3204. Unpublished.
Doc. No. 632-3210	Faessel, V.	2003c.	Determination of residues of Phosmet and Phosmet-oxon in stone fruits, following two treatments with IMIDAN-50WP; during 2002 in Spain; Anadiag, France. Doc. No. 632-3210. Unpublished.
Doc. No. 632-2010	Farrell, P.	2004.	Residue study (at harvest) with a WP formulation containing 500 g/kg Phosmet applied to apples in Spain and Italy. Margarita Internacional, Portugal. MRG 064/033721. Doc. No. 632-2010. Unpublished.
Doc. No. 632-2042	Lopez, N.M.R.	2006a.	Determinação de resíduo (parte analítica) do produto comercial de IMIDAN 500 WP (fosmete) em amostras de frutos de maçã – Farroupilha/RS. Doc. No. 632-2042. Unpublished.
Doc. No. 632-2043	Lopez, N.M.R.	2006b	Determinação de resíduo (parte analítica) do produto comercial IMIDAN 500 WP (fosmete) amostras frutos de maçã – Cambé/PR. Doc. No. 632-2043. Unpublished.
Doc. No. 632-2007	Serrano, C.	2003a	Determination of Phosmet residues in pome fruits, following three applications with IMIDAN-50WP, during 2001 and 2002 in Spain; TrialCamp, Spain. Doc. No. 632-2007. Unpublished
Doc. No. 632-3205	Serrano, C.	2003b.	Determination of Phosmet residues in stone fruits, following two applications with IMIDAN-50WP, during 2001 and 2002 in Spain; Final field report. TrialCamp, Spain. Doc. No. 632-3205. Unpublished.
Doc. No. 632-2037	Simek, I.	2006	Residue Study with a WP Formulation Containing 500 g/kg Phosmet Applied to Apples under Field Conditions in Southern Europe in 2004; Anadiag, France. Doc. No. 632-2037. Unpublished.
Doc. No. 632-2041	Tornisielo, V.L.	2005a	Determinação de resíduo de IMIDAN 500 WP (fosmete) em frutos de maçã – São Joaquim/SC. Doc. No. 632-2041. Unpublished.
Doc. No. 632-2044	Tornisielo, V.L.	2005b	Determinação de resíduo de IMIDAN 500 WP (fosmete) em frutos de maçã – Vacaria/RS. Doc. No. 632-2044. Unpublished.
Doc. No. 632-3216	Tornisielo, V.L.	2000a	Determinação de resíduo de IMIDAN 500 WP (Fosmet) em frutos de pêssego– Piedade/SP. Doc. No. 632-3216. Unpublished.
Doc. No. 632-3217	Tornisielo, V.L.	2000b	Determinação de resíduo de IMIDAN 500 WP (Fosmet) em frutos de pêssego– Lavras/MG. Doc. No. 632-3217. Unpublished.
Doc. No. 632-3218	Tornisielo, V.L.	2000c	Determinação de resíduo de IMIDAN 500 WP (Fosmet) em frutos de pêssego– Barbacena/MG. Doc. No. 632-3218. Unpublished.

US Pesticide Data Program,

<http://www.ams.usda.gov/science/pdp>

