APPENDIX 1

SUMMARY TABLES OF GENETIC AND RELATED EFFECTS

Summary table of genetic and related effects of beryllium compounds

Compound	Nonmammalian systems												Mammalian systems																													
	Prokaryotes		Lower eukaryotes				Plants			Insects				*In vitro*															*In vivo*														
														Animal cells								Human cells								Animals							Humans				
	D	G	D	R	G	A	D	G	C	R	G	C	A	D	G	S	M	C	A	T	I	D	G	S	M	C	A	T	I	D	G	S	M	C	DL	A	D	S	M	C	A
Beryllium chloride	–	–													+[1]	+[1]		+[1]																								
Beryllium nitrate	+[1]	–														+[1]																										
Beryllium oxides	–[1]	–[1]												+[1]		–[1]				+[1]																							
Beryllium sulfate	+	–		–[1]										–[1]		+[1]		?		+			+[1]		?						–[1]											

A, aneuploidy; C, chromosomal aberrations; D, DNA damage; DL, dominant lethal mutation; G, gene mutation; I, inhibition of intercellular communication; M, micronuclei; R, mitotic recombination and gene conversion; S, sister chromatid exchange; T, cell transformation

In completing the tables, the following symbols indicate the consensus of the Working Group with regard to the results for each end-point:

\+ considered to be positive for the specific end-point and level of biological complexity

\+[1] considered to be positive, but only one valid study was available to the Working Group

– considered to be negative

–[1] considered to be negative, but only one valid study was available to the Working Group

? considered to be equivocal or inconclusive (e.g. there were contradictory results from different laboratories; there were confounding exposures; the results were equivocal)

Summary table of genetic and related effects of cadmium compounds

Compound	Nonmammalian systems													Mammalian systems																													
	Prokaryotes		Lower eukaryotes				Plants			Insects				*In vitro*																*In vivo*													
														Animal cells								Human cells								Animals							Humans				
	D	G	D	R	G	A	D	G	C	R	G	C	A	D	G	S	M	C	A	T	I	D	G	S	M	C	A	T	I	D	G	S	M	C	DL	A	D	S	M	C	A
Cadmium acetate														+[1]		−[1]				+		+[1]				?[1]		+													
Cadmium chloride	+	?		+	−[1]	−					−		+[1]	+	+	?	+[1]	+		+		+		+[1]	+[1]	−[1]				+[1]		?	?	+	−	+					
Cadmium nitrate	−[1]	?									−[1]			+[1]		−[1]																									
Cadmium oxide		−[1]																																							
Cadmium sulfate	+	?		+[1]										+[1]	+[1]			+						−[1]																	
Cadmium sulfide														+[1]						+[1]						+[1]															

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− considered to be negative

−[1] considered to be negative, but only one valid study was available to the Working Group

? considered to be equivocal or inconclusive (e.g. there were contradictory results from different laboratories; there were confounding exposures; the results were equivocal)

Summary table of genetic and related effects of mercury and mercury compounds

	Nonmammalian systems													Mammalian, fish and amphibian systems																											
	Prokaryotes		Lower eukaryotes				Plants			Insects				*In vitro*																*In vivo*											
														Animal cells								Human cells								Animals							Humans				
Compound	D	G	D	R	G	A	D	G	C[a]	R	G	C	A	D	G	S	M	C	A[a]	T	I	D	G	S	M	C	A[a]	T	I	D	G	S	M	C	DL	A[a]	D	S	M	C	A
Inorganic mercury																																									
Metallic mercury																																									
Amalgams																																						+[1]	?[1]	–	–
Mercuric chloride	–			?[1]	+[1]			+[1]						+	+[1]	?[1]	–[1]	+[1]	+[1]	+[1]				+[1]		?	+[1]						+[1]	?	?	–				–	?
Mercurous chloride	+[1]																																								
Mercuric acetate																		+[1]										–[1]						–							
Organomercury																																									
Methylmercury chloride[b]	+[1]	–[1]		–[1]	?	?[1]			+[1]				+[1]		+		+[1]	+	+[1]					+[1]		+	+			?[1]		?	+[1]	?	+	+					
Methylmercury hydroxide									+	–[1]	+	?	+		–[1]			+[1]																	?						
Methylmercury acetate[c]		–[1]																															–[1]								
Methylmercury dicyandiamide									+[1]																										–[1]						
Methoxyethylmercury chloride									+				–		+[1]											+[1]	+[1]														
Bis(ethylmercury)-hydrogen phosphate	–[1]																																								
Dimethylmercury			+[1]															+[1]								+[1]	+[1]														
Ethylmercury																																									
Ethylmercury chloride									+[1]								+[1]										+[1]													?[1]	?[1]

Summary table of genetic and related effects of mercury and mercury compounds (contd)

	Nonmammalian systems													Mammalian, fish and amphibian systems																											
	Prokaryotes		Lower eukaryotes				Plants			Insects				*In vitro*																*In vivo*											
														Animal cells								Human cells								Animals							Humans				
Compound	D	G	D	R	G	A	D	G	C[a]	R	G	C	A	D	G	S	M	C	A[a]	T	I	D	G	S	M	C	A[a]	T	I	D	G	S	M	C	DL	A[a]	D	S	M	C	A
***Organomercury* (contd)**																																									
Butylmercury bromide									+[1]																																
Phenylmercury																																								–[1]	?[1]
Phenylmercury chloride	–[1]																+[1]										+[1]														
Phenylmercury hydroxide								+	+				+[1]																												
Phenylmercury acetate	?												+[1]																									+[1]		–[1]	?[1]
Phenylmercury nitrate								+[1]	+[1]																																
Mercury fulminate																																							?[1]	?[1]	–[1]
Mixture of mercury compounds																																								+[1]	–[1]
Fungicides																																									
Panogen 5[d]									+[1]																																
Panogen 8[e]									+[1]																																
Panogen 15[f]									+																																
Ceresan[g]											?																														
Agrimax M[h]									+																																
Ceresan M[i]											+[1]																														
Granosan[j]									+																																
Agallol[k]											–																														

Summary table of genetic and related effects of mercury and mercury compounds (contd)

	Nonmammalian systems													Mammalian, fish and amphibian systems																											
	Prokaryotes		Lower eukaryotes				Plants			Insects				*In vitro*																*In vivo*											
														Animal cells								Human cells								Animals							Humans				
Compound	D	G	D	R	G	A	D	G	C[a]	R	G	C	A	D	G	S	M	C	A[a]	T	I	D	G	S	M	C	A[a]	T	I	D	G	S	M	C	DL	A[a]	D	S	M	C	A
Fungicides (contd)																																									
Betoxin[l]									+[1]																																
New improved ceresan[m]									+[1]																																
Azo dye																																									
Mercury orange		–[1]																																							
Alimentary sources																																									
Mercury-contaminated fish or seal																														–[1]				?[1]				?		?	?

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[a] Including spindle disturbances; [b] Micronuclei in plants, +; [c] Sperm head abnormality, mice *in vivo*, –[1]; [d] Containing methylmercury diacyandiamide (5 g Hg/L); [e] Containing methylmercury diacyandiamide (6.4 Hg/L); [f] Containing methylmercury diacyandiamide (2.3%); [g] Containing phenylmercury acetate; [h] Containing phenylmercury dinaphthylmethanedisulfonate; [i] Containing ethylmercury-*p*-toluenesulfanylamide; [j] Containing ethylmercury chloride; [k] Containing methoxyethylmercury chloride; [l] Containing ethylmercury halogenide (90%); [m] Containing ethylmercury phosphate