APPENDIX 1

SUMMARY TABLES OF GENETIC AND RELATED EFFECTS

Summary table of genetic and related effects of ethylene

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
	$-^1$																				–								$+^1$			$-^1$								

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 endpoint:

- $+$ considered to be positive for the specific endpoint 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 ethylene oxide

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	G	S	M	C	A
?[1]	+		+[1]	+			+	+		+	+			+		+[1]	+[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

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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 propylene

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
	–[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

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- –[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 propylene oxide

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
+	+		+[1]	+						+[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

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–[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 isoprene

Nonmammalian systems													Mammalian systems																													
Proka-ryotes		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
–																															$+^1$	$+^1$	$-^1$								

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 endpoint:

+ considered to be positive for the specific endpoint 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 styrene

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
–	?		+	?				+[1]		+[1]		–[1]		+[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 endpoint:

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–[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 styrene-7,8-oxide

Nonmammalian systems												
Prokaryotes		Lower eukaryotes				Plants			Insects			
D	G	D	R	G	A	D	G	C	R	G	C	A
+	+		$+^{1}$	+				$+^{1}$		$+^{1}$		

Mammalian systems																											
In vitro																In vivo											
Animal cells								Human cells								Animals							Humans				
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
+	+	+	$+^{1}$	$+^{1}$		$-^{1}$				+	$+^{1}$	+				$+^{1}$		+	–	+	$-^{1}$						

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 endpoint:

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- ? 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 4-vinylcyclohexene

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
	-																																							

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 endpoint:

+ considered to be positive for the specific endpoint 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 4-vinyl-1,2-epoxycyclohexane

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
	–													–[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

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? 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 4-vinylcyclohexene diepoxide

Nonmammalian systems												
Proka-ryotes		Lower eukaryotes				Plants			Insects			
D	G	D	R	G	A	D	G	M	R	G	C	A
	+		+	+[1]				+				

Mammalian systems															
In vitro															
Animal cells								Human cells							
D	G	S	M	C	A	T	I	D	G	S	M	C	A	T	I
	+	+[1]	-[1]	+[1]											

Mammalian systems											
In vivo											
Animals							Humans				
D	G	S	M	C	DL	A	D	S	M	C	A

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 endpoint:

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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 vinyl toluene

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
	–									–[1]				?[1]	–[1]		–[1]						+[a]		+[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

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–[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)
[a] positive response also for *meta* and *para* isomers of vinyl toluene

Summary table of genetic and related effects of acrylamide

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
+[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

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? 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 glycidamide

Nonmammalian systems												
Proka-ryotes		Lower eukaryotes				Plants			Insects			
D	G	D	R	G	A	D	G	C	R	G	C	A
	+											

Mammalian systems																											
In vitro																In vivo											
Animal cells								Human cells								Animals							Humans				
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
+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 endpoint:

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+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 *N*-methylolacrylamide

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
	–														?[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

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? 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 methyl methacrylate

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
	–													+	+[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

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? 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 2-ethylhexyl acrylate

Nonmammalian systems												
Prokaryotes		Lower eukaryotes				Plants			Insects			
D	G	D	R	G	A	D	G	C	R	G	C	A
	–											

Mammalian systems															
In vitro															
Animal cells								Human cells							
D	G	S	M	C	A	T	I	D	G	S	M	C	A	T	I
	?		–[1]	?[1]											

Mammalian systems											
In vivo											
Animals							Humans				
D	G	S	M	C	DL	A	D	S	M	C	A

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

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