APPENDIX 1

SUMMARY TABLES OF GENETIC AND RELATED EFFECTS

Summary table of genetic and related effects of CI Acid Orange 3

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]																																							

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 HC Blue No. 1 (purified samples)

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]											+[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 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 HC Blue No. 1 (commercial samples)

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

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 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 HC Blue No. 2

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]												–								

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 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 HC Red No. 3

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

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

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:

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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 HC Yellow No. 4

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
	$+^{1}$									$+^{1}$	$-^{1}$				$+^{1}$		$?^{1}$																							

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 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 2-amino-4-nitrophenol

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

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 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 2-amino-5-nitrophenol

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

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

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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 1,4-diamino-2-nitrobenzene

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

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 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 D&C Red No. 9

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

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 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 CI Basic Red 9

Nonmammalian systems														Mammalian systems																													
Prokaryotes		Lower eukaryotes				Plants			Insects				*In vitro*[a]																*In vivo*[b]															
													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

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

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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] Mutagenic in a body fluid assay

[b] Host-mediated assays in mouse

Summary table of genetic and related effects of CI Direct Blue 15

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]															-[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:

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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)

[a] Positive with reduction, negative without

Summary table of genetic and related effects of CI Acid Red 114

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]						-								-[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:

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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)

[a] Positive with reduction, negative without

Summary table of genetic and related effects of CI Pigment Red No. 3

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

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

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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 4,4′-methylene bis(2-chloroaniline) (MOCA)

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]				+[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:

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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 *para*-chloroaniline

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

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 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 2,6-dimethylaniline

Nonmammalian systems												
Prokaryotes		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
		$+^1$		$+^1$												$+^1$			-								

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 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 *N,N*-dimethylaniline

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

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 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)