

## CONTENTS

NOTE TO THE READER.....	1
LIST OF PARTICIPANTS.....	3
PREAMBLE	
Background .....	9
Objective and Scope .....	9
Selection of Topics for Monographs .....	10
Data for Monographs.....	11
The Working Group.....	11
Working Procedures.....	11
Exposure Data .....	12
Studies of Cancer in Humans .....	14
Studies of Cancer in Experimental Animals .....	17
Other Data Relevant to an Evaluation of Carcinogenicity and its Mechanisms .....	20
Summary of Data Reported.....	22
Evaluation .....	23
References .....	27
GENERAL REMARKS.....	33
SUMMARY OF FINAL EVALUATIONS .....	37
THE MONOGRAPHS	
<b>Part One—Compounds reviewed in plenary sessions (comprehensive monographs)</b>	
Acrylonitrile.....	43
1,3-Butadiene.....	109
Chloroprene .....	227
Dichloromethane .....	251
<b>Part Two—Other compounds reviewed in plenary sessions</b>	
Acetaldehyde .....	319
Aziridine .....	337
Benzoyl peroxide.....	345

<i>n</i> -Butyl acrylate .....	359
$\gamma$ -Butyrolactone .....	367
Caprolactam .....	383
Carbon tetrachloride .....	401
Catechol .....	433
$\alpha$ -Chlorinated toluenes and benzoyl chloride .....	453
1,2-Dibromo-3-chloropropane .....	479
1,2-Dichloroethane .....	501
Dimethylcarbamoyl chloride .....	531
Dimethylformamide .....	545
Dimethyl sulfate .....	575
1,4-Dioxane .....	589
Epichlorohydrin .....	603
1,2-Epoxybutane .....	629
Ethylene dibromide (1,2-dibromoethane) .....	641
Hydrogen peroxide .....	671
Hydroquinone .....	691
Methyl bromide .....	721
Methyl chloride .....	737
Phenol .....	749
Polychlorophenols and their sodium salts .....	769
1,1,2,2-Tetrachloroethane .....	817
Toluene .....	829
Toluene diisocyanates .....	865
1,1,1-Trichloroethane .....	881
Tris(2,3-dibromopropyl) phosphate .....	905
Vinyl bromide .....	923

### **Part Three—Compounds not reviewed in plenary sessions**

#### **Part Three A—Extensive new data requiring new summaries**

1,3-Dichloropropene .....	933
1,2-Dimethylhydrazine .....	947
Hydrazine .....	991
Isoprene .....	1015
Isopropanol .....	1027
Malonaldehyde (malondialdehyde) .....	1037
4,4'-Methylenediphenyl diisocyanate and polymeric 4,4'-methylenediphenyl diisocyanate .....	1049
Methyl methanesulfonate .....	1059
2-Nitropropane .....	1079
1,3-Propane sultone .....	1095
$\beta$ -Propiolactone .....	1103

Resorcinol .....	1119
1,1,1,2-Tetrachloroethane .....	1133
Tetrafluoroethylene .....	1143
1,1,2-Trichloroethane.....	1153
Vinylidene chloride .....	1163
<i>N</i> -Vinyl-2-pyrrolidone and polyvinylpyrrolidone .....	1181
Xylenes .....	1189

**Part Three B—Few new data**

Acetamide .....	1211
Acrylic acid .....	1223
Allyl chloride.....	1231
Allyl isovalerate.....	1241
1,4-Benzoquinone ( <i>para</i> -quinone) .....	1245
1,4-Benzoquinone dioxime .....	1251
Benzyl acetate .....	1255
Bis(2-chloroethyl)ether .....	1265
1,2-Bis(chloromethoxy)ethane .....	1271
1,4-Bis(chloromethoxymethyl)benzene .....	1273
Bis(2-chloro-1-methylethyl)ether .....	1275
Bis(2,3-epoxycyclopentyl)ether .....	1281
Bisphenol A diglycidyl ether .....	1285
Bromochloroacetonitrile .....	1291
Bromodichloromethane .....	1295
Bromoethane .....	1305
Bromoform .....	1309
$\beta$ -Butyrolactone .....	1317
Carbazole .....	1319
Chloroacetonitrile .....	1325
Chlorodibromomethane .....	1331
Chlorodifluoromethane .....	1339
Chloroethane .....	1345
Chlorofluoromethane.....	1351
2-Chloro-1,1,1-trifluoroethane .....	1355
Cyclohexanone .....	1359
Decabromodiphenyl oxide.....	1365
Dibromoacetonitrile.....	1369
Dichloroacetonitrile .....	1375
Dichloroacetylene .....	1381
<i>trans</i> -1,4-Dichlorobutene .....	1389
1,2-Dichloropropane .....	1393
1,2-Diethylhydrazine .....	1401

Diethyl sulfate .....	1405
Diglycidyl resorcinol ether .....	1417
Diisopropyl sulfate .....	1421
1,1-Dimethylhydrazine .....	1425
Dimethyl hydrogen phosphite .....	1437
3,4-Epoxy-6-methylcyclohexylmethyl 3,4-epoxy-6-methyl- cyclohexane carboxylate .....	1441
<i>cis</i> -9,10-Epoxystearic acid .....	1443
Ethyl acrylate .....	1447
Glycidaldehyde .....	1459
Hexamethylphosphoramide .....	1465
Isopropyl oils .....	1483
Lauroyl peroxide .....	1485
Methyl acrylate .....	1489
2-Methylaziridine (propyleneimine) .....	1497
Methyl iodide.....	1503
Morpholine .....	1511
1,5-Naphthalene diisocyanate .....	1515
Pentachloroethane .....	1519
Phenyl glycidyl ether.....	1525
Tetrakis(hydroxymethyl)phosphonium salts .....	1529
Trichloroacetonitrile .....	1533
Triethylene glycol diglycidyl ether .....	1539
Tris(2-chloroethyl) phosphate .....	1543
1,2,3-Tris(chloromethoxy)propane .....	1549
Vinylidene fluoride .....	1551
 CUMULATIVE INDEX TO THE MONOGRAPHS SERIES .....	 1555

## NOTE TO THE READER

The term ‘carcinogenic risk’ in the *IARC Monographs* series is taken to mean the probability that exposure to an agent will lead to cancer in humans.

Inclusion of an agent in the *Monographs* does not imply that it is a carcinogen, only that the published data have been examined. Equally, the fact that an agent has not yet been evaluated in a monograph does not mean that it is not carcinogenic.

The evaluations of carcinogenic risk are made by international working groups of independent scientists and are qualitative in nature. No recommendation is given for regulation or legislation.

Anyone who is aware of published data that may alter the evaluation of the carcinogenic risk of an agent to humans is encouraged to make this information available to the Unit of Carcinogen Identification and Evaluation, International Agency for Research on Cancer, 150 cours Albert Thomas, 69372 Lyon Cedex 08, France, in order that the agent may be considered for re-evaluation by a future Working Group.

Although every effort is made to prepare the monographs as accurately as possible, mistakes may occur. Readers are requested to communicate any errors to the Unit of Carcinogen Identification and Evaluation, so that corrections can be reported in future volumes.