

## RESULTS AND CONCLUSIONS

The assessments of degrees of evidence for carcinogenicity in humans and in experimental animals, as well as the overall evaluations of carcinogenicity to humans, are given in Table 1. A summary of the conclusions of the December 1986 Working Group on genetic and related effects is given in Appendix 1.

*Group 1.* The Working Group concluded that the following agents are carcinogenic to humans:

Aflatoxins

Aluminium production

4-Aminobiphenyl

Analgesic mixtures containing phenacetin

Arsenic and arsenic compounds\*  
Asbestos  
Auramine, manufacture of  
Azathioprine  
Benzene  
Benzidine  
Betel quid with tobacco  
*N,N*-Bis(2-chloroethyl)-2-naphthylamine (Chlornaphazine)  
Bis(chloromethyl)ether and chloromethyl methyl ether (technical-grade)  
Boot and shoe manufacture and repair  
1,4-Butanediol dimethanesulphonate (Myleran)  
Chlorambucil  
1-(2-Chloroethyl)-3-(4-methylcyclohexyl)-1-nitrosourea (Methyl-CCNU)  
Chromium compounds, hexavalent\*  
Coal gasification  
Coal-tar pitches  
Coal-tars  
Coke production  
Cyclophosphamide  
Diethylstilboestrol  
Erionite  
Furniture and cabinet making  
Haematite mining, underground, with exposure to radon  
Iron and steel founding  
Isopropyl alcohol manufacture, strong-acid process  
Magenta, manufacture of  
Melphalan  
8-Methoxypsoralen (Methoxsalen) plus ultraviolet radiation  
Mineral oils, untreated and mildly-treated  
MOPP (combined therapy with nitrogen mustard, vincristine, procarbazine and prednisone) and other combined chemotherapy including alkylating agents  
Mustard gas (Sulphur mustard)  
2-Naphthylamine  
Nickel and nickel compounds\*  
Oestrogen replacement therapy  
Oestrogens, nonsteroidal\*  
Oestrogens, steroidal\*  
Oral contraceptives, combined<sup>1</sup>  
Oral contraceptives, sequential  
The rubber industry

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\*This evaluation applies to the group of chemicals as a whole and not necessarily to all individual chemicals within the group (see also Methods, p. 38).

<sup>1</sup>There is also conclusive evidence that these agents have a protective effect against cancers of the ovary and endometrium (see summary, p. 297).

Shale-oils  
Soots  
Talc containing asbestiform fibres  
Tobacco products, smokeless  
Tobacco smoke  
Trosulphan  
Vinyl chloride

*Group 2A.* The Working Group concluded that the following agents are probably carcinogenic to humans:

Acrylonitrile  
Adriamycin  
Androgenic (anabolic) steroids  
Benz[*a*]anthracene  
Benzidine-based dyes  
Benzo[*a*]pyrene  
Beryllium and beryllium compounds  
Bischloroethyl nitrosourea (BCNU)  
Cadmium and cadmium compounds  
1-(2-Chloroethyl)-3-cyclohexyl-1-nitrosourea (CCNU)  
Cisplatin  
Creosotes  
Dibenz[*a,h*]anthracene  
Diethyl sulphate  
Dimethylcarbamoyl chloride  
Dimethyl sulphate  
Epichlorohydrin  
Ethylene dibromide  
Ethylene oxide  
*N*-Ethyl-*N*-nitrosourea  
Formaldehyde  
5-Methoxypsoralen  
4,4'-Methylene bis(2-chloroaniline) (MOCA)  
*N*-Methyl-*N'*-nitro-*N*-nitrosoguanidine (MNNG)  
*N*-Methyl-*N*-nitrosourea  
Nitrogen mustard  
*N*-Nitrosodiethylamine  
*N*-Nitrosodimethylamine  
Phenacetin  
Polychlorinated biphenyls  
Procarbazine hydrochloride  
Propylene oxide  
Silica, crystalline

Styrene oxide  
Tris(1-aziridinyl)phosphine sulphide (Thiotepa)  
Tris(2,3-dibromopropyl) phosphate  
Vinyl bromide

*Group 2B.* The Working Group concluded that the following agents are possibly carcinogenic to humans:

A- $\alpha$ -C (2-Amino-9*H*-pyrido[2,3-*b*]indole)  
Acetaldehyde  
Acetamide  
Acrylamide  
AF-2 [2-(2-Furyl)-3-(5-nitro-2-furyl)acrylamide]  
*para*-Aminoazobenzene  
*ortho*-Aminoazotoluene  
2-Amino-5-(5-nitro-2-furyl)-1,3,4-thiadiazole  
Amitrole  
*ortho*-Anisidine  
Aramite®  
Auramine, technical-grade  
Azaserine  
Benzo[*b*]fluoranthene  
Benzo[*j*]fluoranthene  
Benzo[*k*]fluoranthene  
Benzyl violet 4B  
Bitumens, extracts of steam-refined and air-refined  
Bleomycins  
Bracken fern  
1,3-Butadiene  
Butylated hydroxyanisole (BHA)  
 $\beta$ -Butyrolactone  
Carbon-black extracts  
Carbon tetrachloride  
Carpentry and joinery  
Carrageenan, degraded  
Chloramphenicol  
Chlordecone (Kepone)  
 $\alpha$ -Chlorinated toluenes  
Chloroform  
Chlorophenols  
Chlorophenoxy herbicides  
4-Chloro-*ortho*-phenylenediamine

*para*-Chloro-*ortho*-toluidine  
Citrus Red No. 2  
*para*-Cresidine  
Cycasin  
Dacarbazine  
Daunomycin  
DDT  
*N,N'*-Diacetylbenzidine  
2,4-Diaminoanisole  
4,4'-Diaminodiphenyl ether  
2,4-Diaminotoluene  
Dibenz[*a,h*]acridine  
Dibenz[*a,j*]acridine  
7*H*-Dibenzo[*c,g*]carbazole  
Dibenzo[*a,e*]pyrene  
Dibenzo[*a,h*]pyrene  
Dibenzo[*a,i*]pyrene  
Dibenzo[*a,l*]pyrene  
1,2-Dibromo-3-chloropropane  
*para*-Dichlorobenzene  
3,3'-Dichlorobenzidine  
3,3'-Dichloro-4,4'-diaminodiphenyl ether  
1,2-Dichloroethane  
Dichloromethane  
1,3-Dichloropropene (technical-grade)  
Diepoxybutane  
Di(2-ethylhexyl)phthalate  
1,2-Diethylhydrazine  
Diglycidyl resorcinol ether  
Dihydrosafrole  
3,3'-Dimethoxybenzidine (*ortho*-Dianisidine)  
*para*-Dimethylaminoazobenzene  
*trans*-2-[(Dimethylamino)methylimino]-5-[2-(5-nitro-2-furyl)vinyl]-1,3,4-oxadiazole  
3,3'-Dimethylbenzidine (*ortho*-Tolidine)  
1,1-Dimethylhydrazine  
1,2-Dimethylhydrazine  
1,4-Dioxane  
Ethyl acrylate  
Ethylene thiourea  
Ethyl methanesulphonate  
2-(2-Formylhydrazino)-4-(5-nitro-2-furyl)thiazole  
Glu-P-1 (2-Amino-6-methyldipyrido[1,2-*a:3',2'-d'*]imidazole)  
Glu-P-2 (2-Aminodipyrido[1,2-*a:3',2'-d'*]imidazole)

Glycidaldehyde  
Griseofulvin  
Hexachlorobenzene  
Hexachlorocyclohexanes  
Hexamethylphosphoramide  
Hydrazine  
Indeno[1,2,3-*cd*]pyrene  
IQ (2-Amino-3-methylimidazo[4,5-*f*]quinoline)  
Iron-dextran complex  
Lasiocarpine  
Lead and lead compounds, inorganic  
MeA- $\alpha$ -C (2-Amino-3-methyl-9*H*-pyrido[2,3-*b*]indole)  
Medroxyprogesterone acetate  
Merphalan  
2-Methylaziridine  
Methylazoxymethanol and its acetate  
5-Methylchrysene  
4,4'-Methylene bis(2-methylaniline)  
4,4'-Methylenedianiline  
Methyl methanesulphonate  
2-Methyl-1-nitroanthraquinone (uncertain purity)  
*N*-Methyl-*N*-nitrosourethane  
Methylthiouracil  
Metronidazole  
Mirex  
Mitomycin C  
Monocrotaline  
5-(Morpholinomethyl)-3-[(5-nitrofurfurylidene)amino]-2-oxazolidinone  
Nafenopin  
Niridazole  
5-Nitroacenaphthene  
Nitrofen (technical-grade)  
1-[(5-Nitrofurfurylidene)amino]-2-imidazolidinone  
*N*-[4-(5-Nitro-2-furyl)-2-thiazolyl]acetamide  
Nitrogen mustard *N*-oxide  
2-Nitropropane  
*N*-Nitrosodi-*n*-butylamine  
*N*-Nitrosodiethanolamine  
*N*-Nitrosodi-*n*-propylamine  
3-(*N*-Nitrosomethylamino)propionitrile  
4-(*N*-Nitrosomethylamino)-1-(3-pyridyl)-1-butanone (NNK)  
*N*-Nitrosomethylethylamine  
*N*-Nitrosomethylvinylamine

*N*-Nitrosomorpholine  
*N'*-Nitrosornicotine  
*N*-Nitrosopiperidine  
*N*-Nitrosopyrrolidine  
*N*-Nitrososarcosine  
Oil Orange SS  
Panfuran S (containing dihydroxymethylfuratrizine)  
Phenazopyridine hydrochloride  
Phenobarbital  
Phenoxybenzamine hydrochloride  
Phenytoin  
Polybrominated biphenyls  
Ponceau MX  
Ponceau 3R  
Potassium bromate  
Progestins  
1,3-Propane sultone  
 $\beta$ -Propiolactone  
Propylthiouracil  
Saccharin  
Safrole  
Sodium *ortho*-phenylphenate  
Sterigmatocystin  
Streptozotocin  
Styrene  
Sulfallate  
2,3,7,8-Tetrachlorodibenzo-*para*-dioxin (TCDD)  
Tetrachloroethylene  
Thioacetamide  
4,4'-Thiodianiline  
Thiourea  
Toluene diisocyanates  
*ortho*-Toluidine  
Toxaphene (Polychlorinated camphenes)  
Trp-P-1 (3-Amino-1,4-dimethyl-5*H*-pyrido[4,3-*b*]indole)  
Trp-P-2 (3-Amino-1-methyl-5*H*-pyrido[4,3-*b*]indole)  
Trypan blue  
Uracil mustard  
Urethane

*Group 3.* The Working Group concluded that the following agents are not classifiable as to their carcinogenicity to humans:

Acridine orange  
Acriflavinium chloride  
Acrolein  
Acrylic acid  
Acrylic fibres  
Acrylonitrile-butadiene-styrene copolymers  
Actinomycin D  
Agaricine  
Aldrin  
Allyl chloride  
Allyl isothiocyanate  
Allyl isovalerate  
Amaranth  
5-Aminoacenaphthene  
2-Aminoanthraquinone  
*para*-Aminobenzoic acid  
1-Amino-2-methylantraquinone  
4-Amino-2-nitrophenol  
2-Amino-5-nitrothiazole  
11-Aminoundecanoic acid  
Anaesthetics, volatile  
Angelicin plus ultraviolet A radiation  
Aniline  
*para*-Anisidine  
Anthanthrene  
Anthracene  
Anthranilic acid  
Apholate  
Attapulgit  
Aurothioglucose  
5-Azacytidine  
Aziridine  
2-(1-Aziridiny)ethanol  
Aziridyl benzoquinone  
Azobenzene  
Benz[*a*]acridine  
Benz[*c*]acridine  
Benzo[*ghi*]fluoranthene  
Benzo[*a*]fluorene  
Benzo[*b*]fluorene  
Benzo[*c*]fluorene

Benzo[*ghi*]perylene  
Benzo[*c*]phenanthrene  
Benzo[*e*]pyrene  
*para*-Benzoquinone dioxime  
Benzoyl chloride  
Benzoyl peroxide  
Benzyl acetate  
Betel quid without tobacco  
Bis(1-aziridinyl)morpholinophosphine sulphide  
Bis(2-chloroethyl)ether  
1,2-Bis(chloromethoxy)ethane  
1,4-Bis(chloromethoxymethyl)benzene  
Bis(2-chloro-1-methylethyl)ether  
Bitumens  
Blue VRS  
Brilliant Blue FCF  
*n*-Butyl acrylate  
Butylated hydroxytoluene (BHT)  
Butyl benzyl phthalate  
 $\gamma$ -Butyrolactone  
Cantharidin  
Captan  
Carbaryl  
Carbazole  
3-Carbethoxypsoralen  
Carbon blacks  
Carmoisine  
Carrageenan, native  
Catechol  
Chlordane/ Heptachlor  
Chlordimeform  
Chlorinated dibenzodioxins (other than TCDD)  
Chlorobenzilate  
Chlorodifluoromethane  
Chlorofluoromethane  
4-Chloro-*meta*-phenylenediamine  
Chloroprene  
Chloroprotham  
Chloroquine  
Chlorothalonil  
2-Chloro-1,1,1-trifluoroethane  
Cholesterol  
Chromium compounds, trivalent

Chromium metal  
Chrysene  
Chrysoidine  
CI Disperse Yellow 3  
Cinnamyl anthranilate  
Citrinin  
Clofibrate  
Clomiphene citrate  
Copper 8-hydroxyquinoline  
Coronene  
Coumarin  
*meta*-Cresidine  
Cyclamates  
Cyclochlorotine  
Cyclopenta[*cd*]pyrene  
D & C Red No. 9  
Dapsone  
Diacetylaminoazotoluene  
Diallate  
1,2-Diamino-4-nitrobenzene  
1,4-Diamino-2-nitrobenzene  
2,5-Diaminotoluene  
Diazepam  
Diazomethane  
Dibenz[*a,c*]anthracene  
Dibenz[*a,j*]anthracene  
Dibenzo[*a,e*]fluoranthene  
Dibenzo[*h,rst*]pentaphene  
Dichloroacetylene  
*ortho*-Dichlorobenzene  
*trans*-1,4-Dichlorobutene  
2,6-Dichloro-*para*-phenylenediamine  
1,2-Dichloropropane  
Dichlorvos  
Dicofol  
Dieldrin  
Di(2-ethylhexyl)adipate  
Dihydroxymethylfuratrizine  
Dimethoxane  
3,3'-Dimethoxybenzidine-4,4'-diisocyanate  
*para*-Dimethylaminoazobenzene diazo sodium sulphonate  
4,4'-Dimethylangelicin plus ultraviolet A radiation  
4,5'-Dimethylangelicin plus ultraviolet A radiation

1,4-Dimethylphenanthrene  
1,8-Dinitropyrene  
Dinitrosopentamethylenetetramine  
2,4'-Diphenyldiamine  
Disulfiram  
Dithranol  
Dulcin  
Endrin  
Eosin  
1-Epoxyethyl-3,4-epoxycyclohexane  
3,4-Epoxy-6-methylcyclohexylmethyl-3,4-epoxy-6-methylcyclohexane carboxylate  
*cis*-9,10-Epoxysearic acid  
Ethionamide  
Ethylene  
Ethylene sulphide  
Ethyl selenac  
Ethyl tellurac  
Eugenol  
Evans blue  
Fast Green FCF  
Ferbam  
Ferric oxide  
Fluometuron  
Fluoranthene  
Fluorene  
Fluorides (inorganic, used in drinking-water)  
5-Fluorouracil  
Furazolidone  
Fusarenon-X  
Glycidyl oleate  
Glycidyl stearate  
Guinea Green B  
Gyromitrin  
Haematite  
Hexachlorobutadiene  
Hexachloroethane  
Hexachlorophene  
Hycanthone mesylate  
Hydralazine  
Hydrogen peroxide  
Hydroquinone  
4-Hydroxyazobenzene  
8-Hydroxyquinoline

Hydroxysenkirkine  
Iron-dextrin complex  
Iron sorbitol-citric acid complex  
Isatidine  
Isonicotinic acid hydrazide (Isoniazid)  
Isophosphamide  
Isopropyl alcohol  
Isopropyl oils  
Isosafrole  
Jacobine  
Kaempferol  
Lauroyl peroxide  
Lead compounds, organolead  
Leather goods manufacture  
Leather tanning and processing  
Light Green SF  
Lumber and sawmill industries (including logging)  
Luteoskyrin  
Magenta  
Malathion  
Maleic hydrazide  
Malonaldehyde  
Maneb  
Mannomustine  
Medphalan  
MeIQ (2-Amino-3,4-dimethylimidazo[4,5-f]quinoline)  
MeIQx (2-Amino-3,8-dimethylimidazo[4,5-f]quinoxaline)  
Melamine  
6-Mercaptopurine  
Methotrexate  
Methoxychlor  
Methyl acrylate  
5-Methylangelicin plus ultraviolet A radiation  
Methyl bromide  
Methyl carbamate  
Methyl chloride  
1-Methylchrysene  
2-Methylchrysene  
3-Methylchrysene  
4-Methylchrysene  
6-Methylchrysene  
*N*-Methyl-*N*,4-dinitrosoaniline  
4,4'-Methylenebis(*N*,*N*-dimethyl)benzenamine

4,4'-Methylenediphenyl diisocyanate  
2-Methylfluoranthene  
3-Methylfluoranthene  
Methyl iodide  
Methyl methacrylate  
Methyl parathion  
1-Methylphenanthrene  
7-Methylpyrido[3,4-*c*]psoralen  
Methyl red  
Methyl selenac  
Mineral oils, highly-refined  
Modacrylic fibres  
Monuron  
1,5-Naphthalenediamine  
1,5-Naphthalene diisocyanate  
1-Naphthylamine  
1-Naphthylthiourea (ANTU)  
Nithiazide  
5-Nitro-*ortho*-anisidine  
9-Nitroanthracene  
6-Nitrobenzo[*a*]pyrene  
4-Nitrobiphenyl  
6-Nitrochrysene  
3-Nitrofluoranthene  
5-Nitro-2-furaldehyde semicarbazone  
1-Nitropyrene  
*N'*-Nitrosoanabasine  
*N'*-Nitrosoanatabine  
*N*-Nitrosodiphenylamine  
*para*-Nitrosodiphenylamine  
*N*-Nitrosofolic acid  
*N*-Nitrosoguvacine  
*N*-Nitrosoguvacoline  
*N*-Nitrosohydroxyproline  
3-(*N*-Nitrosomethylamino)propionaldehyde  
4-(*N*-Nitrosomethylamino)-4-(3-pyridyl)-1-butanal (NNA)  
*N*-Nitrosoproline  
Nitrovin  
Nylon 6  
Ochratoxin A  
Oestradiol mustard  
Oestrogen-progestin replacement therapy  
Orange I

Orange G  
Oxazepam  
Oxyphenbutazone  
Parasorbic acid  
Parathion  
Patulin  
Penicillic acid  
Pentachloroethane  
Perylene  
Petasitenine  
Phenanthrene  
Phenelzine sulphate  
Phenicarbazide  
Phenylbutazone  
*meta*-Phenylenediamine  
*para*-Phenylenediamine  
*N*-Phenyl-2-naphthylamine  
*ortho*-Phenylphenol  
Piperonyl butoxide  
Polyacrylic acid  
Polychloroprene  
Polyethylene  
Polymethylene polyphenyl isocyanate  
Polymethyl methacrylate  
Polypropylene  
Polystyrene  
Polytetrafluoroethylene  
Polyurethane foams  
Polyvinyl acetate  
Polyvinyl alcohol  
Polyvinyl chloride  
Polyvinyl pyrrolidone  
Ponceau SX  
Potassium bis(2-hydroxyethyl)dithiocarbamate  
Prednisone  
Proflavine salts  
Pronetalol hydrochloride  
Propham  
*n*-Propyl carbamate  
Propylene  
Ptaquiloside  
Pulp and paper manufacture  
Pyrene  
Pyrido[3,4-*c*]psoralen

Pyrimethamine  
Quercetin  
*para*-Quinone  
Quintozene (Pentachloronitrobenzene)  
Reserpine  
Resorcinol  
Retrorsine  
Rhodamine B  
Rhodamine 6G  
Riddelliine  
Rifampicin  
Rugulosin  
Saccharated iron oxide  
Scarlet Red  
Selenium and selenium compounds  
Semicarbazide hydrochloride  
Seneciophylline  
Senkirkine  
Sepiolite  
Shikimic acid  
Silica, amorphous  
Sodium diethyldithiocarbamate  
Spironolactone  
Styrene-acrylonitrile copolymers  
Styrene-butadiene copolymers  
Succinic anhydride  
Sudan I  
Sudan II  
Sudan III  
Sudan Brown RR  
Sudan Red 7B  
Sulfafurazole (Sulphisoxazole)  
Sulfamethoxazole  
Sunset Yellow FCF  
Symphytine  
Talc not containing asbestiform fibres  
Tannic acid and tannins  
Terpene polychlorinates (Strobane®)  
2,2',5,5'-Tetrachlorobenzidine  
1,1,1,2-Tetrachloroethane  
1,1,2,2-Tetrachloroethane  
Tetrachlorvinphos  
Tetrafluoroethylene

Thiouracil  
Thiram  
Trichlorfon  
1,1,1-Trichloroethane  
1,1,2-Trichloroethane  
Trichloroethylene  
Trichlorotriethylamine hydrochloride  
T<sub>2</sub>-Trichothecene  
Triethylene glycol diglycidyl ether  
4,4',6-Trimethylangelicin plus ultraviolet A radiation  
2,4,5-Trimethylaniline  
2,4,6-Trimethylaniline  
4,5',8-Trimethylpsoralen  
Triphenylene  
Tris(aziridinyl)-*para*-benzoquinone (Triaziqunone)  
Tris(1-aziridinyl)phosphine oxide  
2,4,6-Tris(1-aziridinyl)-*s*-triazine  
1,2,3-Tris(chloromethoxy)propane  
Tris(2-methyl-1-aziridinyl)phosphine oxide  
Vinblastine sulphate  
Vincristine sulphate  
Vinyl acetate  
Vinyl chloride-vinyl acetate copolymers  
4-Vinylcyclohexene  
Vinyl fluoride  
Vinylidene chloride  
Vinylidene chloride-vinyl chloride copolymers  
Vinylidene fluoride  
*N*-Vinyl-2-pyrrolidone  
Wollastonite  
2,4-Xylidine  
2,5-Xylidine  
Yellow AB  
Yellow OB  
Zearalenone  
Zectran  
Zineb  
Ziram

*Group 4.* The Working Group concluded that the following agent is probably not carcinogenic to humans:

Caprolactam

**Table 1. Degrees of evidence for carcinogenicity in humans and in experimental animals, and overall evaluations of carcinogenicity to humans for agents evaluated in IARC Monographs volumes 1-42**

Agent	Degree of evidence for carcinogenicity <sup>a</sup>		Overall evaluation <sup>a</sup>
	Human	Animal	
A- $\alpha$ -C (2-Amino-9H-pyrido[2,3-b]indole) <sup>b</sup> [40, 1986]	ND	S	2B
Acetaldehyde	I	S	2B
Acetamide <sup>c</sup>	ND	S	2B
Acridine orange <sup>d</sup> [16, 1978]	ND	I	3
Acriflavinium chloride <sup>d</sup> [13, 1977]	ND	I	3
Acrolein	I	I	3
Acrylamide <sup>b</sup> [39, 1986]	ND	S	2B
Acrylic acid <sup>d</sup> [19, 1979]	ND	ND	3
Acrylic fibres <sup>d</sup> [19, 1979]	ND	ND	3
Acrylonitrile	L	S	2A
Acrylonitrile-butadiene-styrene copolymers <sup>d</sup> [19, 1979]	ND	ND	3
Actinomycin D	I	L	3
Adriamycin <sup>e</sup>	I	S	2A
AF-2 [2-(2-Furyl)-3-(5-nitro-2-furyl)acrylamide] <sup>b</sup> [31, 1983]	ND	S	2B
Aflatoxins	S	S	1
Agaricine <sup>b</sup> [31, 1983]	ND	I	3
Aldrin	I	L	3
Allyl chloride <sup>b</sup> [36, 1985]	ND	I	3
Allyl isothiocyanate <sup>b</sup> [36, 1985]	ND	L	3
Allyl isovalerate <sup>b</sup> [36, 1985]	ND	L	3
Aluminium production	S		1
Amaranth <sup>d</sup> [8, 1975]	ND	I	3
5-Aminoacenaphthene <sup>d</sup> [16, 1978]	ND	I	3
2-Aminoanthraquinone <sup>b</sup> [27, 1982]	ND	L	3
<i>para</i> -Aminoazobenzene <sup>c</sup>	ND	S	2B
<i>ortho</i> -Aminoazotoluene <sup>b</sup> [8, 1975]	ND	S	2B
<i>para</i> -Aminobenzoic acid <sup>d</sup> [16, 1978]	ND	I	3

<sup>a</sup>ND, no adequate data; ESL, evidence suggesting lack of carcinogenicity; I, inadequate evidence; L, limited evidence; S, sufficient evidence. For definitions of terms and overall evaluations, see Preamble, pp. 30-32.

<sup>b</sup>Overall evaluation based only on evidence of carcinogenicity in monograph [volume, year] (see Methods, p. 39) or in Supplement 4

<sup>c</sup>Degree of evidence in animals revised on the basis of data that appeared after the most recent monograph and/or on the basis of present criteria (see Methods, pp. 39-40)

<sup>d</sup>Degree of evidence not previously categorized; evaluation made according to present criteria on the basis of data in monograph [volume, year] (see Methods, p. 39)

<sup>e</sup>Other relevant data, as given in the summaries here or in monograph [volume, year], influenced the making of the overall evaluation (see Methods, pp. 38-39)

**Table 1. (contd)**

Agent	Degree of evidence for carcinogenicity <sup>a</sup>		Overall evaluation <sup>a</sup>
	Human	Animal	
4-Aminobiphenyl	S	S	1
1-Amino-2-methylantraquinone <sup>b</sup> [27, 1982]	ND	L	3
2-Amino-5-(5-nitro-2-furyl)-1,3,4-thiadiazole <sup>b</sup> [7, 1974]	ND	S	2B
4-Amino-2-nitrophenol <sup>d</sup> [16, 1978]	ND	I	3
2-Amino-5-nitrothiazole <sup>b</sup> [31, 1983]	ND	L	3
11-Aminoundecanoic acid <sup>b</sup> [39, 1986]	ND	L	3
Amitrole	I	S	2B
Anaesthetics, volatile	I		3
Cyclopropane		ND	
Diethyl ether		ND	
Divinyl ether		ND	
Enflurane		I	
Fluroxene		ND	
Halothane		I	
Isoflurane		I	
Methoxyflurane		I	
Nitrous oxide		I	
Androgenic (anabolic) steroids	L		2A
Oxymetholone		ND	
Testosterone		S	
Angelics <sup>b</sup> [40, 1986]			
Angelicin plus ultraviolet A radiation	ND	L	3
5-Methylangelicin plus ultraviolet A radiation	ND	L	3
4,4'-Dimethylangelicin plus ultraviolet A radiation	ND	ND	3
4,5'-Dimethylangelicin plus ultraviolet A radiation	ND	L	3
4,4',6-Trimethylangelicin plus ultraviolet A radiation	ND	ND	3
Aniline	I	L	3
<i>ortho</i> -Anisidine <sup>b</sup> [27, 1982]	ND	S	2B
<i>para</i> -Anisidine <sup>b</sup> [27, 1982]	ND	I	3
Anthanthrene <sup>b</sup> [32, 1982]	ND	L	3
Anthracene <sup>c</sup>	ND	I	3
Anthranilic acid <sup>d</sup> [16, 1978]	ND	I	3
Apholate <sup>d</sup> [9, 1975]	ND	I	3
Aramite <sup>®b</sup> [5, 1974]	ND	S	2B
Arsenic and arsenic compounds	S	L	1*
Asbestos	S	S	1
Attapulgit	I	L	3
Auramine (technical-grade)	I	S	2B
Manufacture of auramine	S		1
Aurothioglucose <sup>d</sup> [13, 1977]	ND	L	3
5-Azacytidine <sup>b</sup> [26, 1981]	ND	L	3
Azaserine <sup>b</sup> [10, 1976]	ND	S	2B

\*This evaluation applies to the group of chemicals as a whole and not necessarily to all individual chemicals within the group (see also Methods, p. 38).

Table 1. (contd)

Agent	Degree of evidence for carcinogenicity <sup>a</sup>		Overall evaluation <sup>a</sup>
	Human	Animal	
Azathioprine	S	L	1
Aziridine <sup>d</sup> [9, 1975]	ND	L	3
2-(1-Aziridinyl)ethanol <sup>d</sup> [9, 1975]	ND	L	3
Aziridyl benzoquinone <sup>d</sup> [9, 1975]	ND	L	3
Azobenzene <sup>d</sup> [8, 1975]	ND	L	3
Benz[ <i>a</i> ]acridine <sup>b</sup> [32, 1983]	ND	I	3
Benz[ <i>c</i> ]acridine <sup>b</sup> [32, 1983]	ND	L	3
Benz[ <i>a</i> ]anthracene <sup>b,e</sup> [32, 1983]	ND	S	2A
Benzene	S	S	1
Benzidine	S	S	1
Benzidine-based dyes <sup>e</sup>	I		2A
Direct Black 38 (technical-grade)		S	
Direct Blue 6 (technical-grade)		S	
Direct Brown 95 (technical-grade)		S	
Benzo[ <i>b</i> ]fluoranthene <sup>b</sup> [32, 1983]	ND	S	2B
Benzo[ <i>j</i> ]fluoranthene <sup>b</sup> [32, 1983]	ND	S	2B
Benzo[ <i>k</i> ]fluoranthene <sup>b</sup> [32, 1983]	ND	S	2B
Benzo[ <i>ghi</i> ]fluoranthene <sup>b</sup> [32, 1983]	ND	I	3
Benzo[ <i>a</i> ]fluorene <sup>b</sup> [32, 1983]	ND	I	3
Benzo[ <i>b</i> ]fluorene <sup>b</sup> [32, 1983]	ND	I	3
Benzo[ <i>c</i> ]fluorene <sup>b</sup> [32, 1983]	ND	I	3
Benzo[ <i>ghi</i> ]perylene <sup>b</sup> [32, 1983]	ND	I	3
Benzo[ <i>c</i> ]phenanthrene <sup>b</sup> [32, 1983]	ND	I	3
Benzo[ <i>a</i> ]pyrene <sup>b,e</sup> [32, 1983]	ND	S	2A
Benzo[ <i>e</i> ]pyrene <sup>b</sup> [32, 1983]	ND	I	3
<i>para</i> -Benzoquinone dioxime <sup>b</sup> [29, 1982]	ND	L	3
Benzoyl chloride	I	I	3
Benzoyl peroxide <sup>b</sup> [36, 1985]	I	I	3
Benzyl acetate <sup>b</sup> [40, 1986]	ND	L	3
Benzyl violet 4B <sup>b</sup> [16, 1978]	ND	S	2B
Beryllium and beryllium compounds	L	S	2A
Betel quid			
With tobacco	S	L	1
Without tobacco	I	L	3
Bis(1-aziridinyl)morpholinophosphine sulphide <sup>d</sup> [9, 1975]	ND	L	3
Bis(2-chloroethyl)ether <sup>d</sup> [9, 1975]	ND	L	3
<i>N,N</i> -Bis(2-chloroethyl)-2-naphthylamine (Chlornaphazine)	S	L	1
1,2-Bis(chloromethoxy)ethane <sup>d</sup> [15, 1977]	ND	L	3
1,4-Bis(chloromethoxymethyl)benzene <sup>d</sup> [15, 1977]	ND	L	3
Bis(chloromethyl)ether and chloromethyl methyl ether (technical-grade)	S	S	1

**Table 1. (contd)**

Agent	Degree of evidence for carcinogenicity <sup>a</sup>		Overall evaluation <sup>a</sup>
	Human	Animal	
Bis(2-chloro-1-methylethyl)ether <sup>b</sup> [41, 1986]	ND	L	3
Bitumens	I		3
Steam-refined and cracking-residue bitumens		L	
Air-refined bitumens		I	
Extracts of steam-refined and air-refined bitumens		S	2B
Bleomycins <sup>e</sup>	I	L	2B
Blue VRS <sup>d</sup> [16, 1978]	ND	L	3
Bracken fern	I	S	2B
Brilliant Blue FCF <sup>d</sup> [16, 1978]	ND	L	3
1,3-Butadiene	I	S	2B
1,4-Butanediol dimethanesulphonate (Myleran)	S	L	1
<i>n</i> -Butyl acrylate <sup>b</sup> [39, 1986]	ND	I	3
Butylated hydroxyanisole (BHA) <sup>b</sup> [40, 1986]	ND	S	2B
Butylated hydroxytoluene (BHT) <sup>b</sup> [40, 1986]	ND	L	3
Butyl benzyl phthalate <sup>b</sup> [29, 1982]	ND	I	3
$\beta$ -Butyrolactone <sup>b</sup> [11, 1976]	ND	S	2B
$\gamma$ -Butyrolactone <sup>b,c</sup> [11, 1976]	ND	I	3
Cadmium and cadmium compounds	L	S	2A
Cantharidin <sup>d</sup> [10, 1976]	ND	L	3
Caprolactam <sup>c</sup>	ND	ESL	4
Captan <sup>b</sup> [30, 1983]	ND	L	3
Carbaryl <sup>d</sup> [12, 1976]	ND	I	3
Carbazole <sup>b</sup> [32, 1983]	ND	L	3
3-Carbethoxypsoralen <sup>b,c</sup> [40, 1986]	ND	I	3
Carbon blacks	I	I	3
Carbon-black extracts		S	2B
Carbon tetrachloride	I	S	2B
Carmoisine <sup>d</sup> [8, 1975]	ND	I	3
Carrageenan			
Native <sup>b,c</sup> [31, 1983]	ND	I	3
Degraded <sup>b</sup> [31, 1983]	ND	S	2B
Catechol <sup>d</sup> [15, 1977]	ND	I	3
Chlorambucil	S	S	1
Chloramphenicol	L	I	2B
Chlordane/Heptachlor	I	L	3
Chlordecone (Kepone) <sup>b</sup> [20, 1979]	ND	S	2B
Chlordimeform <sup>b</sup> [30, 1983]	ND	I	3
Chlorinated dibenzodioxins (other than TCDD) <sup>d</sup> [15, 1977]	ND	I	3

**Table 1. (contd)**

Agent	Degree of evidence for carcinogenicity <sup>a</sup>		Overall evaluation <sup>a</sup>
	Human	Animal	
$\alpha$ -Chlorinated toluenes	I		2B
Benzyl chloride		L	
Benzal chloride		L	
Benzotrichloride		S	
Chlorobenzilate <sup>b</sup> [30, 1983]	ND	L	3
Chlorodifluoromethane	I	L	3
Chloroethyl nitrosoureas			
Bischloroethyl nitrosourea (BCNU)	L	S	2A
1-(2-Chloroethyl)-3-cyclohexyl-1-nitrosourea (CCNU) <sup>e</sup>	I	S	2A
1-(2-Chloroethyl)-3-(4-methylcyclohexyl)-1-nitrosourea (Methyl-CCNU)	S	L	1
Chlorofluoromethane <sup>b</sup> [41, 1986]	ND	L	3
Chloroform	I	S	2B
Chlorophenols	L		2B
Pentachlorophenol		I	
2,4,5-Trichlorophenol		I	
2,4,6-Trichlorophenol		S	
Chlorophenoxy herbicides	L		2B
2,4-D		I	
2,4,5-T		I	
MCPA		ND	
4-Chloro- <i>ortho</i> -phenylenediamine <sup>b</sup> [27, 1982]	ND	S	2B
4-Chloro- <i>meta</i> -phenylenediamine <sup>b</sup> [27, 1982]	ND	I	3
Chloroprene	I	I	3
Chloropropham <sup>d</sup> [12, 1976]	ND	I	3
Chloroquine <sup>d</sup> [13, 1977]	ND	I	3
Chlorothalonil <sup>b</sup> [30, 1983]	ND	L	3
<i>para</i> -Chloro- <i>ortho</i> -toluidine <sup>b</sup> [30, 1983]	ND	S	2B
2-Chloro-1,1,1-trifluoroethane <sup>b</sup> [41, 1986]	ND	L	3
Cholesterol	I	I	3
Chromium and chromium compounds			
Chromium metal	I	I	3
Trivalent chromium compounds	I	I	3
Hexavalent chromium compounds	S	S	1*
Chrysene <sup>b</sup> [32, 1983]	ND	L	3
Chrysoidine	I	L	3
CI Disperse Yellow 3 <sup>d</sup> [8, 1975]	ND	I	3
Cinnamyl anthranilate <sup>b</sup> [31, 1983]	ND	L	3
Cisplatin <sup>e</sup>	I	S	2A
Citrinin <sup>b</sup> [40, 1986]	ND	L	3
Citrus Red No. 2 <sup>b</sup> [8, 1975]	ND	S	2B

\*This evaluation applies to the group of chemicals as a whole and not necessarily to all individual chemicals within the group (see also Methods, p. 38).

Table 1. (contd)

Agent	Degree of evidence for carcinogenicity <sup>a</sup>		Overall evaluation <sup>a</sup>
	Human	Animal	
Clofibrate	I	L	3
Clomiphene citrate	I	I	3
Coal gasification	S		1
Coal-tar pitches	S	S	1
Coal-tars	S	S	1
Coke production	S		1
Copper 8-hydroxyquinoline <sup>d</sup> [15, 1977]	ND	I	3
Coronene <sup>b</sup> [32, 1983]	ND	I	3
Coumarin <sup>d</sup> [10, 1976]	ND	L	3
Creosotes	L	S	2A
<i>meta</i> -Cresidine <sup>b</sup> [27, 1982]	ND	I	3
<i>para</i> -Cresidine <sup>b</sup> [27, 1982]	ND	S	2B
Cycasin <sup>b</sup> [10, 1976] ( <i>see also</i> Methylazoxymethanol and its acetate)	ND	S	2B
Cyclamates	I	L	3
Cyclochlorotine <sup>d</sup> [10, 1976]	ND	I	3
Cyclopenta[ <i>cd</i> ]pyrene <sup>b</sup> [32, 1983]	ND	L	3
Cyclophosphamide	S	S	1
Dacarbazine	I	S	2B
D & C Red No. 9 <sup>d</sup> [8, 1975]	ND	I	3
Dapsone	I	L	3
Daunomycin <sup>b</sup> [10, 1976]	ND	S	2B
DDT	I	S	2B
Diacetylaminoazotoluene <sup>d</sup> [8, 1975]	ND	I	3
<i>N,N'</i> -Diacetylbenzidine <sup>b</sup> [16, 1978]	ND	S	2B
Diallate <sup>b</sup> [30, 1983]	ND	L	3
2,4-Diaminoanisole <sup>b</sup> [27, 1982]	ND	S	2B
4,4'-Diaminodiphenyl ether <sup>b</sup> [29, 1982]	ND	S	2B
1,2-Diamino-4-nitrobenzene <sup>d</sup> [16, 1978]	ND	I	3
1,4-Diamino-2-nitrobenzene <sup>d</sup> [16, 1978]	ND	I	3
2,4-Diaminotoluene <sup>b</sup> [16, 1978]	ND	S	2B
2,5-Diaminotoluene <sup>d</sup> [16, 1978]	ND	I	3
Diazepam	I	I	3
Diazomethane <sup>d</sup> [7, 1974]	ND	L	3
Dibenz[ <i>a,h</i> ]acridine <sup>b</sup> [32, 1983]	ND	S	2B
Dibenz[ <i>a,j</i> ]acridine <sup>b</sup> [32, 1983]	ND	S	2B
Dibenz[ <i>a,c</i> ]anthracene <sup>b</sup> [32, 1983]	ND	L	3
Dibenz[ <i>a,h</i> ]anthracene <sup>b,e</sup> [32, 1983]	ND	S	2A
Dibenz[ <i>a,j</i> ]anthracene <sup>b</sup> [32, 1983]	ND	L	3
7 <i>H</i> -Dibenzo[ <i>c,g</i> ]carbazole <sup>b</sup> [32, 1983]	ND	S	2B
Dibenzo[ <i>a,e</i> ]fluoranthene <sup>b</sup> [32, 1983]	ND	L	3

Table 1. (contd)

Agent	Degree of evidence for carcinogenicity <sup>a</sup>		Overall evaluation <sup>a</sup>
	Human	Animal	
Dibenzo[ <i>h,rst</i> ]pentaphene <sup>d</sup> [3, 1973]	ND	L	3
Dibenzo[ <i>a,e</i> ]pyrene <sup>b</sup> [32, 1983]	ND	S	2B
Dibenzo[ <i>a,h</i> ]pyrene <sup>b</sup> [32, 1983]	ND	S	2B
Dibenzo[ <i>a,i</i> ]pyrene <sup>b</sup> [32, 1983]	ND	S	2B
Dibenzo[ <i>a,l</i> ]pyrene <sup>b</sup> [32, 1983]	ND	S	2B
1,2-Dibromo-3-chloropropane	I	S	2B
Dichloroacetylene <sup>b</sup> [39, 1986]	ND	L	3
<i>ortho</i> -Dichlorobenzene	I	I	3
<i>para</i> -Dichlorobenzene	I	S	2B
3,3'-Dichlorobenzidine	I	S	2B
<i>trans</i> -1,4-Dichlorobutene <sup>d</sup> [15, 1977]	ND	I	3
3,3'-Dichloro-4,4'-diaminodiphenyl ether <sup>b</sup> [16, 1978]	ND	S	2B
1,2-Dichloroethane <sup>b</sup> [20, 1979]	ND	S	2B
Dichloromethane	I	S	2B
2,6-Dichloro- <i>para</i> -phenylenediamine <sup>b</sup> [39, 1986]	ND	L	3
1,2-Dichloropropane <sup>b</sup> [41, 1986]	ND	L	3
1,3-Dichloropropene (technical-grade)	I	S	2B
Dichlorvos <sup>b</sup> [20, 1979]	ND	I	3
Dicofol <sup>b</sup> [30, 1983]	ND	L	3
Dieldrin	I	L	3
Diepoxybutane <sup>b</sup> [11, 1976]	ND	S	2B
Di(2-ethylhexyl)adipate <sup>b</sup> [29, 1982]	ND	L	3
Di(2-ethylhexyl)phthalate <sup>b</sup> [29, 1982]	ND	S	2B
1,2-Diethylhydrazine <sup>b</sup> [4, 1974]	ND	S	2B
Diethyl sulphate	L	S	2A
Diglycidyl resorcinol ether <sup>b</sup> [36, 1985]	ND	S	2B
Dihydrosafrole <sup>b</sup> [10, 1976]	ND	S	2B
Dihydroxymethylfuratrizine <sup>b</sup> [24, 1980] ( <i>see also</i> Panfuran S)	ND	I	3
Dimethoxane <sup>d</sup> [15, 1977]	ND	L	3
3,3'-Dimethoxybenzidine ( <i>ortho</i> -Dianisidine)	I	S	2B
3,3'-Dimethoxybenzidine-4,4'-diisocyanate <sup>b</sup> [39, 1986]	ND	L	3
<i>para</i> -Dimethylaminoazobenzene <sup>b</sup> [8, 1975]	ND	S	2B
<i>para</i> -Dimethylaminoazobenzene diazo sodium sulphonate <sup>d</sup> [8, 1975]	ND	I	3
<i>trans</i> -2-[(Dimethylamino)methylimino]-5-[2-(5-nitro-2-furyl)vinyl]-1,3,4-oxadiazole <sup>b</sup> [7, 1974]	ND	S	2B
3,3'-Dimethylbenzidine ( <i>ortho</i> -Tolidine) <sup>b</sup> [1, 1972]	ND	S	2B
Dimethylcarbonyl chloride <sup>e</sup>	I	S	2A
1,1-Dimethylhydrazine <sup>b</sup> [4, 1974]	ND	S	2B
1,2-Dimethylhydrazine <sup>b</sup> [4, 1974]	ND	S	2B
1,4-Dimethylphenanthrene <sup>b</sup> [32, 1983]	ND	I	3

Table 1. (contd)

Agent	Degree of evidence for carcinogenicity <sup>a</sup>		Overall evaluation <sup>a</sup>
	Human	Animal	
Dimethyl sulphate <sup>e</sup>	I	S	2A
1,8-Dinitropyrene <sup>b</sup> [33, 1984]	ND	I	3
Dinitrosopentamethylenetetramine <sup>d</sup> [11, 1976]	ND	I	3
1,4-Dioxane	I	S	2B
2,4'-Diphenyldiamine <sup>d</sup> [16, 1978]	ND	I	3
Disulfiram <sup>d</sup> [12, 1976]	ND	I	3
Dithranol <sup>d</sup> [13, 1977]	ND	I	3
Dulcin <sup>d</sup> [12, 1976]	ND	I	3
Endrin <sup>d</sup> [5, 1974]	ND	I	3
Eosin <sup>d</sup> [15, 1977]	ND	I	3
Epichlorohydrin <sup>e</sup>	I	S	2A
1-Epoxyethyl-3,4-epoxycyclohexane <sup>d</sup> [11, 1976]	ND	L	3
3,4-Epoxy-6-methylcyclohexylmethyl-3,4-epoxy-6-methylcyclohexane carboxylate <sup>d</sup> [11, 1976]	ND	L	3
<i>cis</i> -9,10-Epoxystearic acid <sup>d</sup> [11, 1976]	ND	I	3
Erionite	S	S	1
Ethionamide <sup>d</sup> [13, 1977]	ND	L	3
Ethyl acrylate <sup>b</sup> [39, 1986]	ND	S	2B
Ethylene <sup>d</sup> [19, 1979]	ND	ND	3
Ethylene dibromide <sup>e</sup>	I	S	2A
Ethylene oxide	L	S	2A
Ethylene sulphide <sup>d</sup> [11, 1976]	ND	L	3
Ethylene thiourea	I	S	2B
Ethyl methanesulphonate <sup>b</sup> [7, 1974]	ND	S	2B
<i>N</i> -Ethyl- <i>N</i> -nitrosoourea <sup>b,e</sup> [17, 1978]	ND	S	2A
Ethyl selenac <sup>d</sup> [12, 1976]	ND	I	3
Ethyl tellurac <sup>d</sup> [12, 1976]	ND	I	3
Eugenol <sup>b</sup> [36, 1985]	ND	L	3
Evans blue <sup>d</sup> [8, 1975]	ND	L	3
Fast Green FCF <sup>d</sup> [16, 1978]	ND	L	3
Ferbam <sup>d</sup> [12, 1976]	ND	I	3
Fluometuron <sup>b</sup> [30, 1983]	ND	I	3
Fluoranthene <sup>b,c</sup> [32, 1983]	ND	I	3
Fluorene <sup>b</sup> [32, 1983]	ND	I	3
Fluorides (inorganic, used in drinking-water)	I	I	3
5-Fluorouracil	I	I	3
Formaldehyde	L	S	2A
2-(2-Formylhydrazino)-4-(5-nitro-2-furyl)thiazole <sup>b</sup> [7, 1974]	ND	S	2B
Furazolidone <sup>b</sup> [31, 1983]	ND	I	3

Table 1. (contd)

Agent	Degree of evidence for carcinogenicity <sup>a</sup>		Overall evaluation <sup>a</sup>
	Human	Animal	
Fusarenon-X <sup>b</sup> [31, 1983]	ND	I	3
Glu-P-1 (2-Amino-6-methyldipyrido[1,2- <i>a</i> :3',2'- <i>d</i> ]imidazole) <sup>b</sup> [40, 1986]	ND	S	2B
Glu-P-2 (2-Aminodipyrido[1,2- <i>a</i> :3',2'- <i>d</i> ]imidazole) <sup>b</sup> [40, 1986]	ND	S	2B
Glycidaldehyde <sup>b</sup> [11, 1976]	ND	S	2B
Glycidyl oleate <sup>d</sup> [11, 1976]	ND	I	3
Glycidyl stearate <sup>d</sup> [11, 1976]	ND	I	3
Griseofulvin <sup>c</sup>	ND	S	2B
Guinea Green B <sup>d</sup> [16, 1978]	ND	L	3
Gyromitrin <sup>c</sup>	ND	L	3
Haematite and ferric oxide			
Ferric oxide	I	ESL	3
Haematite	I	I	3
Underground haematite mining with exposure to radon	S		1
Hexachlorobenzene	I	S	2B
Hexachlorobutadiene <sup>b</sup> (20, 1979)	ND	L	3
Hexachlorocyclohexanes (HCH)	I		2B
Technical-grade HCH		S	
$\alpha$ -HCH		S	
$\beta$ -HCH		L	
$\gamma$ -HCH (Lindane)		L	
Hexachloroethane <sup>b</sup> [20, 1979]	ND	L	3
Hexachlorophene <sup>b</sup> [20, 1979]	ND	I	3
Hexamethylphosphoramide <sup>b</sup> [15, 1977]	ND	S	2B
Hycanthone mesylate <sup>d</sup> [13, 1977]	ND	I	3
Hydralazine	I	L	3
Hydrazine	I	S	2B
Hydrogen peroxide <sup>b</sup> [36, 1985]	ND	L	3
Hydroquinone <sup>d</sup> [15, 1977]	ND	I	3
4-Hydroxyazobenzene <sup>d</sup> [8, 1975]	ND	I	3
8-Hydroxyquinoline <sup>d</sup> [13, 1977]	ND	I	3
Hydroxysenkirkine <sup>d</sup> [10, 1976]	ND	I	3
Indeno[1,2,3- <i>cd</i> ]pyrene <sup>b</sup> [32, 1983]	ND	S	2B
IQ (2-Amino-3-methylimidazo[4,5- <i>f</i> ]quinoline) <sup>b</sup> [40, 1986]	ND	S	2B
Iron and steel founding	S		1
Iron-dextran complex	I	S	2B
Iron-dextrin complex <sup>d</sup> [2, 1973]	ND	L	3
Iron sorbitol-citric acid complex <sup>d</sup> [2, 1973]	ND	I	3

**Table 1. (contd)**

Agent	Degree of evidence for carcinogenicity <sup>a</sup>		Overall evaluation <sup>a</sup>
	Human	Animal	
Isatidine <sup>d</sup> [10, 1976]	ND	L	3
Isonicotinic acid hydrazide (Isoniazid)	I	L	3
Isophosphamide <sup>b</sup> [26, 1981]	ND	L	3
Isopropyl alcohol manufacture (strong-acid process)	S		1
Isopropyl alcohol	I	I	3
Isopropyl oils	I	I	3
Isosafrole <sup>d</sup> [10, 1976]	ND	L	3
Jacobine <sup>d</sup> [10, 1976]	ND	I	3
Kaempferol <sup>b</sup> [31, 1983]	ND	I	3
Lasiocarpine <sup>b</sup> [10, 1976]	ND	S	2B
Lauroyl peroxide <sup>b</sup> [36, 1985]	ND	I	3
Lead and lead compounds			
Inorganic	I	S	2B
Organolead	I	I	3
Leather industries			
Boot and shoe manufacture and repair	S		1
Leather goods manufacture	I		3
Leather tanning and processing	I		3
Light Green SF <sup>d</sup> [16, 1978]	ND	L	3
Luteoskyrin <sup>d</sup> [10, 1976]	ND	L	3
Magenta	I	I	3
Manufacture of magenta	S		1
Malathion <sup>b,c</sup> [30, 1983]	ND	I	3
Maleic hydrazide <sup>d</sup> [4, 1974]	ND	I	3
Malonaldehyde <sup>b</sup> [36, 1985]	ND	I	3
Maneb <sup>d</sup> [12, 1976]	ND	I	3
Mannomustine <sup>d</sup> [9, 1975]	ND	L	3
MeA- $\alpha$ -C (2-Amino-3-methyl-9H-pyrido[2,3-b]indole) <sup>b</sup> [40, 1986]	ND	S	2B
Medphalan <sup>d</sup> [9, 1975]	ND	I	3
MeIQ (2-Amino-3,4-dimethylimidazo[4,5-f]quinoline) <sup>b</sup> [40, 1986]	ND	I	3
MeIQx (2-Amino-3,8-dimethylimidazo[4,5-f]quinoxaline) <sup>b</sup> [40, 1986]	ND	I	3
Melamine <sup>b</sup> [39, 1986]	ND	I	3
Melphalan	S	S	1
6-Mercaptopurine	I	I	3
Merphalan <sup>b</sup> [9, 1975]	ND	S	2B
Methotrexate	I	I	3

Table 1. (contd)

Agent	Degree of evidence for carcinogenicity <sup>a</sup>		Overall evaluation <sup>a</sup>
	Human	Animal	
Methoxychlor <sup>b,c</sup> [20, 1979]	ND	I	3
5-Methoxypsoralen <sup>e</sup>	I	S	2A
8-Methoxypsoralen (Methoxsalen) plus ultraviolet radiation	S	S	1
Methyl acrylate <sup>b</sup> [39, 1986]	ND	I	3
2-Methylaziridine <sup>b</sup> [9, 1975]	ND	S	2B
Methylazoxymethanol and its acetate <sup>b</sup> [10, 1976]	ND	S	2B
Methyl bromide	I	L	3
Methyl carbamate <sup>d</sup> [12, 1976]	ND	I	3
Methyl chloride	I	I	3
1-Methylchrysene <sup>b</sup> [32, 1983]	ND	I	3
2-Methylchrysene <sup>b</sup> [32, 1983]	ND	L	3
3-Methylchrysene <sup>b</sup> [32, 1983]	ND	L	3
4-Methylchrysene <sup>b</sup> [32, 1983]	ND	L	3
5-Methylchrysene <sup>b</sup> [32, 1983]	ND	S	2B
6-Methylchrysene <sup>b</sup> [32, 1983]	ND	L	3
<i>N</i> -Methyl- <i>N</i> ,4-dinitrosoaniline <sup>d</sup> [1, 1972]	ND	L	3
4,4'-Methylene bis(2-chloroaniline) (MOCA) <sup>e</sup>	I	S	2A
4,4'-Methylenebis( <i>N,N</i> -dimethyl)benzenamine <sup>b</sup> [27, 1982]	ND	L	3
4,4'-Methylene bis(2-methylaniline)	I	S	2B
4,4'-Methylenedianiline <sup>b</sup> [39, 1986]	ND	S	2B
4,4'-Methylenediphenyl diisocyanate <sup>d</sup> [19, 1979]	ND	ND	3
2-Methylfluoranthene <sup>b</sup> [32, 1983]	ND	L	3
3-Methylfluoranthene <sup>b</sup> [32, 1983]	ND	I	3
Methyl iodide <sup>b</sup> [41, 1986]	ND	L	3
Methyl methacrylate <sup>d</sup> [19, 1979]	ND	I	3
Methyl methanesulphonate <sup>b</sup> [7, 1974]	ND	S	2B
2-Methyl-1-nitroanthraquinone (uncertain purity) <sup>b</sup> [27, 1982]	ND	S	2B
<i>N</i> -Methyl- <i>N'</i> -nitro- <i>N</i> -nitrosoguanidine (MNNG) <sup>e</sup>	I	S	2A
<i>N</i> -Methyl- <i>N</i> -nitrosourea <sup>b,e</sup> [17, 1978]	ND	S	2A
<i>N</i> -Methyl- <i>N</i> -nitrosourethane <sup>b</sup> [4, 1974]	ND	S	2B
Methyl parathion <sup>c</sup>	ND	ESL	3
1-Methylphenanthrene <sup>b</sup> [32, 1983]	ND	I	3
Methyl red <sup>d</sup> [8, 1975]	ND	I	3
Methyl selenac <sup>d</sup> [12, 1976]	ND	I	3
Methylthiouracil <sup>b</sup> [7, 1974]	ND	S	2B
Metronidazole	I	S	2B
Mineral oils			
Untreated and mildly-treated oils	S	S	1
Highly-refined oils	I	I	3
Mirex <sup>b</sup> [20, 1979]	ND	S	2B

**Table 1. (contd)**

Agent	Degree of evidence for carcinogenicity <sup>a</sup>		Overall evaluation <sup>a</sup>
	Human	Animal	
Mitomycin C <sup>b</sup> [10, 1976]	ND	S	2B
Modacrylic fibres <sup>d</sup> [19, 1979]	ND	ND	3
Monocrotaline <sup>b</sup> [10, 1976]	ND	S	2B
Monuron <sup>d</sup> [12, 1976]	ND	L	3
MOPP <sup>1</sup> and other combined chemotherapy including alkylating agents	S	I	1
5-(Morpholinomethyl)-3-[(5-nitrofurfurylidene)amino]-2-oxazolidinone <sup>b</sup> [7, 1974]	ND	S	2B
Mustard gas (Sulphur mustard)	S	L	1
Nafenopin <sup>b</sup> [24, 1980]	ND	S	2B
1,5-Naphthalenediamine <sup>b</sup> [27, 1982]	ND	L	3
1,5-Naphthalene diisocyanate <sup>d</sup> [19, 1979]	ND	ND	3
1-Naphthylamine	I	I	3
2-Naphthylamine	S	S	1
1-Naphthylthiourea (ANTU)	I	I	3
Nickel and nickel compounds	S	S	1*
Niridazole <sup>b</sup> [13, 1977]	ND	S	2B
Nithiazide <sup>b</sup> [31, 1983]	ND	L	3
5-Nitroacenaphthene <sup>b</sup> [16, 1978]	ND	S	2B
5-Nitro-ortho-anisidine <sup>b</sup> [27, 1982]	ND	L	3
9-Nitroanthracene <sup>b</sup> [33, 1984]	ND	ND	3
6-Nitrobenzo[a]pyrene <sup>b</sup> [33, 1984]	ND	I	3
4-Nitrobiphenyl <sup>d</sup> [4, 1974]	ND	I	3
6-Nitrochrysene <sup>b</sup> [33, 1984]	ND	I	3
Nitrofen (technical-grade) <sup>b</sup> [30, 1983]	ND	S	2B
3-Nitrofluoranthene <sup>b</sup> [33, 1984]	ND	I	3
5-Nitro-2-furaldehyde semicarbazone <sup>d</sup> [7, 1974]	ND	I	3
1-[(5-Nitrofurfurylidene)amino]-2-imidazolidinone <sup>b</sup> [7, 1974]	ND	S	2B
N-[4-(5-Nitro-2-furyl)-2-thiazolyl]acetamide <sup>b</sup> [7, 1974]	ND	S	2B
Nitrogen mustard	L	S	2A
Nitrogen mustard N-oxide <sup>b</sup> [9, 1975]	ND	S	2B
2-Nitropropane <sup>b</sup> [29, 1982]	ND	S	2B
1-Nitropyrene <sup>b</sup> [33, 1984]	ND	L	3
N'-Nitrosoanabasine <sup>b</sup> [37, 1985]	ND	L	3
N'-Nitrosoanatabine <sup>b</sup> [37, 1985]	ND	I	3
N-Nitrosodi-n-butylamine <sup>b</sup> [17, 1978]	ND	S	2B
N-Nitrosodiethanolamine <sup>b</sup> [17, 1978]	ND	S	2B
N-Nitrosodiethylamine <sup>b,e</sup> [17, 1978]	ND	S	2A
N-Nitrosodimethylamine <sup>b,e</sup> [17, 1978]	ND	S	2A
N-Nitrosodiphenylamine <sup>b</sup> [27, 1982]	ND	L	3

<sup>1</sup>Combined therapy with nitrogen mustard, vincristine, procarbazine and prednisone

\*This evaluation applies to the group of chemicals as a whole and not necessarily to all individual chemicals within the group (see also Methods, p. 38).

Table 1. (contd)

Agent	Degree of evidence for carcinogenicity <sup>a</sup>		Overall evaluation <sup>a</sup>
	Human	Animal	
<i>para</i> -Nitrosodiphenylamine <sup>b</sup> [27, 1982]	ND	I	3
<i>N</i> -Nitrosodi- <i>n</i> -propylamine <sup>b</sup> [17, 1978]	ND	S	2B
<i>N</i> -Nitrosofolic acid <sup>d</sup> [17, 1978]	ND	I	3
<i>N</i> -Nitrosoguvacine <sup>b</sup> [37, 1985]	ND	ND	3
<i>N</i> -Nitrosoguvacoline <sup>b</sup> [37, 1985]	ND	I	3
<i>N</i> -Nitrosohydroxyproline <sup>d</sup> [17, 1978]	ND	I	3
3-( <i>N</i> -Nitrosomethylamino)propionaldehyde <sup>b</sup> [37, 1985]	ND	ND	3
3-( <i>N</i> -Nitrosomethylamino)propionitrile <sup>b</sup> [37, 1985]	ND	S	2B
4-( <i>N</i> -Nitrosomethylamino)-4-(3-pyridyl)-1-butanal (NNA) <sup>b</sup> [37, 1985]	ND	I	3
4-( <i>N</i> -Nitrosomethylamino)-1-(3-pyridyl)-1-butanone (NNK) <sup>b</sup> [37, 1985]	ND	S	2B
<i>N</i> -Nitrosomethylethylamine <sup>b</sup> [17, 1978]	ND	S	2B
<i>N</i> -Nitrosomethylvinylamine <sup>b</sup> [17, 1978]	ND	S	2B
<i>N</i> -Nitrosomorpholine <sup>b</sup> [17, 1978]	ND	S	2B
<i>N</i> -Nitrosornicotine <sup>b</sup> [37, 1985]	ND	S	2B
<i>N</i> -Nitrosopiperidine <sup>b</sup> [17, 1978]	ND	S	2B
<i>N</i> -Nitrosoproline <sup>d</sup> [17, 1978]	ND	I	3
<i>N</i> -Nitrosopyrrolidine <sup>b</sup> [17, 1978]	ND	S	2B
<i>N</i> -Nitrososarcosine <sup>b</sup> [17, 1978]	ND	S	2B
Nitrovin <sup>b</sup> [31, 1983]	ND	I	3
Nylon 6 <sup>d</sup> [19, 1979]	ND	I	3
Ochratoxin A	I	L	3
Oestradiol mustard <sup>d</sup> [9, 1975]	ND	L	3
Oestrogens, progestins and combinations			
Oestrogens			
Nonsteroidal oestrogens	S		1*
Diethylstilboestrol	S	S	1
Dienoestrol		L	
Hexoestrol		S	
Chlorotrianisene		I	
Steroidal oestrogens	S		1*
Oestrogen replacement therapy	S		1
Conjugated oestrogens		L	
Oestradiol-17 $\beta$ and esters		S	
Oestriol		L	
Oestrone		S	
Ethinylloestradiol		S	
Mestranol		S	

<sup>a</sup>This evaluation applies to the group of chemicals as a whole and not necessarily to all individual chemicals within the group (see also Methods, p. 38).

**Table 1. (contd)**

Agent	Degree of evidence for carcinogenicity <sup>a</sup>		Overall evaluation <sup>a</sup>
	Human	Animal	
Progestins	I		2B
Medroxyprogesterone acetate	I	S	2B
Chlormadinone acetate		L	
Dimethisterone		I	
Ethinodiol diacetate		L	
17 $\alpha$ -Hydroxyprogesterone caproate		I	
Lynoestrenol		I	
Megestrol acetate		L	
Norethisterone		S	
Norethynodrel		L	
Norgestrel		I	
Progesterone		S	
Oestrogen-progestin combinations			
Sequential oral contraceptives	S		1
Dimethisterone and oestrogens		I	
Combined oral contraceptives	S		1 <sup>1</sup>
Chlormadinone acetate and oestrogens		L	
Ethinodiol diacetate and oestrogens		L	
Lynoestrenol and oestrogens		I	
Megestrol acetate and oestrogens		L	
Norethisterone and oestrogens		L	
Norethynodrel and oestrogens		S	
Norgestrel and oestrogens		I	
Progesterone and oestrogens		L	
Investigational oral contraceptives		L	
Oestrogen-progestin replacement therapy	I		3
Oil Orange SS <sup>b</sup> [8, 1975]	ND	S	2B
Orange I <sup>d</sup> [8, 1975]	ND	I	3
Orange G <sup>d</sup> [8, 1975]	ND	I	3
Oxazepam <sup>d</sup> [13, 1977]	ND	L	3
Oxyphenbutazone <sup>d</sup> [13, 1977]	ND	ND	3
Panfuran S (containing dihydroxymethylfuratrizine) <sup>b</sup> [24, 1980]	ND	S	2B
Parasorbic acid <sup>d</sup> [10, 1976]	ND	L	3
Parathion <sup>b</sup> [30, 1983]	ND	I	3
Patulin <sup>b</sup> [40, 1986]	ND	I	3
Penicillic acid <sup>d</sup> [10, 1976]	ND	L	3
Pentachloroethane <sup>b</sup> [41, 1986]	ND	L	3
Perylene <sup>b</sup> [32, 1983]	ND	I	3
Petasitenine <sup>b</sup> [31, 1983]	ND	L	3
Phenacetin	L	S	2A
Analgesic mixtures containing phenacetin	S	L	1
Phenanthrene <sup>b</sup> [32, 1983]	ND	I	3

<sup>1</sup>There is also conclusive evidence that these agents have a protective effect against cancers of the ovary and endometrium (see summary, p. 297).

**Table 1. (contd)**

Agent	Degree of evidence for carcinogenicity <sup>a</sup>		Overall evaluation <sup>a</sup>
	Human	Animal	
Phenazopyridine hydrochloride	I	S	2B
Phenelzine sulphate	I	L	3
Phenicarbazide <sup>d</sup> [12, 1976]	ND	L	3
Phenobarbital	I	S	2B
Phenoxybenzamine hydrochloride <sup>b</sup> [24, 1980]	ND	S	2B
Phenylbutazone	I	ND	3
<i>meta</i> -Phenylenediamine <sup>d</sup> [16, 1978]	ND	I	3
<i>para</i> -Phenylenediamine <sup>d</sup> [16, 1978]	ND	I	3
<i>N</i> -Phenyl-2-naphthylamine	I	L	3
<i>ortho</i> -Phenylphenol <sup>b</sup> [30, 1983]	ND	I	3
Phenytoin	L	L	2B
Piperonyl butoxide <sup>b,c</sup> [30, 1983]	ND	I	3
Polyacrylic acid <sup>d</sup> [19, 1979]	ND	ND	3
Polybrominated biphenyls	I	S	2B
Polychlorinated biphenyls	L	S	2A
Polychloroprene <sup>d</sup> [19, 1979]	ND	ND	3
Polyethylene <sup>d</sup> [19, 1979]	ND	I	3
Polymethylene polyphenyl isocyanate <sup>d</sup> [19, 1979]	ND	ND	3
Polymethyl methacrylate <sup>d</sup> [19, 1979]	ND	I	3
Polypropylene <sup>d</sup> [19, 1979]	ND	I	3
Polystyrene <sup>d</sup> [19, 1979]	ND	I	3
Polytetrafluoroethylene <sup>d</sup> [19, 1979]	ND	I	3
Polyurethane foams <sup>d</sup> [19, 1979]	ND	I	3
Polyvinyl acetate <sup>d</sup> [19, 1979]	ND	I	3
Polyvinyl alcohol <sup>d</sup> [19, 1979]	ND	I	3
Polyvinyl chloride <sup>d</sup> [19, 1979]	I	I	3
Polyvinyl pyrrolidone <sup>d</sup> [19, 1979]	ND	L	3
Ponceau MX <sup>b</sup> [8, 1975]	ND	S	2B
Ponceau 3R <sup>b</sup> [8, 1975]	ND	S	2B
Ponceau SX <sup>d</sup> [8, 1975]	ND	I	3
Potassium bis(2-hydroxyethyl)dithiocarbamate <sup>d</sup> [12, 1976]	ND	L	3
Potassium bromate <sup>b</sup> [40, 1986]	ND	S	2B
Prednisone	I	I	3
Procarbazine hydrochloride <sup>e</sup>	I	S	2A
Proflavine salts <sup>b</sup> [24, 1980]	ND	I	3
Pronetalol hydrochloride <sup>d</sup> [13, 1977]	ND	L	3
1,3-Propane sultone <sup>b</sup> [4, 1974]	ND	S	2B
Propham <sup>d</sup> [12, 1976]	ND	I	3
$\beta$ -Propiolactone <sup>b</sup> [4, 1974]	ND	S	2B
<i>n</i> -Propyl carbamate <sup>d</sup> [12, 1976]	ND	L	3

**Table 1. (contd)**

Agent	Degree of evidence for carcinogenicity <sup>a</sup>		Overall evaluation <sup>a</sup>
	Human	Animal	
Propylene <sup>d</sup> [19, 1979]	ND	ND	3
Propylene oxide <sup>e</sup>	I	S	2A
Propylthiouracil	I	S	2B
Ptaquiloside <sup>b</sup> [40, 1986]	ND	L	3
Pyrene <sup>b,c</sup> [32, 1983]	ND	I	3
Pyrido[3,4- <i>c</i> ]psoralen <sup>b</sup> [40, 1986]	ND	I	3
7-Methylpyrido[3,4- <i>c</i> ]psoralen <sup>b</sup> [40, 1986]	ND	I	3
Pyrimethamine <sup>d</sup> [13, 1977]	ND	L	3
Quercetin <sup>b</sup> [31, 1983]	ND	L	3
<i>para</i> -Quinone <sup>d</sup> [15, 1977]	ND	I	3
Quintozene (Pentachloronitrobenzene) <sup>d</sup> [5, 1974]	ND	L	3
Reserpine	I	L	3
Resorcinol <sup>d</sup> [15, 1977]	ND	I	3
Retrorsine <sup>d</sup> [10, 1976]	ND	L	3
Rhodamine B <sup>d</sup> [16, 1978]	ND	L	3
Rhodamine 6G <sup>d</sup> [16, 1978]	ND	L	3
Riddelliine <sup>d</sup> [10, 1976]	ND	I	3
Rifampicin <sup>b</sup> [24, 1980]	ND	L	3
Rubber industry	S	I	1
Rugulosin <sup>b</sup> [40, 1986]	ND	I	3
Saccharated iron oxide <sup>d</sup> [2, 1973]	ND	L	3
Saccharin	I	S	2B
Safrole <sup>b</sup> [10, 1976]	ND	S	2B
Scarlet Red <sup>d</sup> [8, 1975]	ND	I	3
Selenium and selenium compounds <sup>d</sup> [9, 1975]	I	I	3
Semicarbazide hydrochloride <sup>d</sup> [12, 1976]	ND	L	3
Seneciophylline <sup>d</sup> [10, 1976]	ND	ND	3
Senkirkine <sup>b</sup> [31, 1983]	ND	L	3
Sepiolite <sup>b</sup> [42, 1987]	ND	I	3
Shale-oils	S	S	1
Shikimic acid <sup>b</sup> [40, 1986]	ND	I	3
Silica			
Crystalline silica	L	S	2A
Amorphous silica	I	I	3
Sodium diethyldithiocarbamate <sup>d</sup> [12, 1976]	ND	I	3
Sodium <i>ortho</i> -phenylphenate <sup>c</sup>	ND	S	2B
Soots	S	I	1
Spirolactone	I	L	3

Table 1. (contd)

Agent	Degree of evidence for carcinogenicity <sup>a</sup>		Overall evaluation <sup>a</sup>
	Human	Animal	
Sterigmatocystin <sup>b</sup> [10, 1976]	ND	S	2B
Streptozotocin <sup>b</sup> [17, 1978]	ND	S	2B
Styrene <sup>e</sup>	I	L	2B
Styrene-acrylonitrile copolymers <sup>d</sup> [19, 1979]	ND	ND	3
Styrene-butadiene copolymers <sup>d</sup> [19, 1979]	ND	ND	3
Styrene oxide <sup>b,e</sup> [36, 1985]	ND	S	2A
Succinic anhydride <sup>d</sup> [15, 1977]	ND	L	3
Sudan I <sup>d</sup> [8, 1975]	ND	L	3
Sudan II <sup>d</sup> [8, 1975]	ND	L	3
Sudan III <sup>d</sup> [8, 1975]	ND	I	3
Sudan Brown RR <sup>d</sup> [8, 1975]	ND	I	3
Sudan Red 7B <sup>d</sup> [8, 1975]	ND	I	3
Sulfafurazole (Sulphisoxazole)	I	I	3
Sulfallate <sup>b</sup> [30, 1983]	ND	S	2B
Sulfamethoxazole	I	L	3
Sunset Yellow FCF <sup>d</sup> [8, 1975]	ND	I	3
Symphytine <sup>b</sup> [31, 1983]	ND	I	3
Talc			
Not containing asbestiform fibres	I	I	3
Containing asbestiform fibres	S	I	1
Tannic acid and tannins <sup>d</sup> [10, 1976]	ND	L	3
Terpene polychlorinates (Strobane®) <sup>d</sup> [5, 1974]	ND	L	3
2,2',5,5'-Tetrachlorobenzidine <sup>b</sup> [27, 1982]	ND	I	3
2,3,7,8-Tetrachlorodibenzo- <i>para</i> -dioxin (TCDD)	I	S	2B
1,1,1,2-Tetrachloroethane <sup>b</sup> [41, 1986]	ND	L	3
1,1,2,2-Tetrachloroethane	I	L	3
Tetrachloroethylene	I	S	2B
Tetrachlorvinphos <sup>b</sup> [30, 1983]	ND	L	3
Tetrafluoroethylene <sup>d</sup> [19, 1979]	ND	ND	3
Thioacetamide <sup>b</sup> [7, 1974]	ND	S	2B
4,4'-Thiodianiline <sup>b</sup> [27, 1982]	ND	S	2B
Thiouracil <sup>d</sup> [7, 1974]	ND	L	3
Thiourea <sup>b</sup> [7, 1974]	ND	S	2B
Thiram <sup>d</sup> [12, 1976]	ND	I	3
Tobacco products, smokeless	S	I	1
Tobacco smoke	S	S	1
Toluene diisocyanates <sup>b</sup> [39, 1986]	ND	S	2B
<i>ortho</i> -Toluidine	I	S	2B
Toxaphene (Polychlorinated camphenes) <sup>b</sup> [20, 1979]	ND	S	2B

Table 1. (contd)

Agent	Degree of evidence for carcinogenicity <sup>a</sup>		Overall evaluation <sup>a</sup>
	Human	Animal	
Treosulphan	S	ND	1
Trichlorfon <sup>b</sup> [30, 1983]	ND	I	3
1,1,1-Trichloroethane <sup>b</sup> [20, 1979]	ND	I	3
1,1,2-Trichloroethane <sup>b</sup> [20, 1979]	ND	L	3
Trichloroethylene	I	L	3
Trichlorotriethylamine hydrochloride <sup>d</sup> [9, 1975]	ND	I	3
T <sub>2</sub> -Trichothecene <sup>b</sup> [31, 1983]	ND	I	3
Triethylene glycol diglycidyl ether <sup>d</sup> [11, 1976]	ND	L	3
2,4,5-Trimethylaniline <sup>b</sup> [27, 1982]	ND	L	3
2,4,6-Trimethylaniline <sup>b</sup> [27, 1982]	ND	I	3
4,5',8-Trimethylpsoralen	I	I	3
Triphenylene <sup>b</sup> [32, 1983]	ND	I	3
Tris(aziridinyl)- <i>para</i> -benzoquinone (Triaziquone)	I	L	3
Tris(1-aziridinyl)phosphine oxide <sup>d</sup> [9, 1975]	ND	I	3
Tris(1-aziridinyl)phosphine sulphide (Thiotepa) <sup>e</sup>	I	S	2A
2,4,6-Tris(1-aziridinyl)- <i>s</i> -triazine <sup>d</sup> [9, 1975]	ND	L	3
1,2,3-Tris(chloromethoxy)propane <sup>d</sup> [15, 1977]	ND	L	3
Tris(2,3-dibromopropyl) phosphate <sup>e</sup>	I	S	2A
Tris(2-methyl-1-aziridinyl)phosphine oxide <sup>d</sup> [9, 1975]	ND	I	3
Trp-P-1 (3-Amino-1,4-dimethyl-5 <i>H</i> -pyrido[4,3- <i>b</i> ]indole) <sup>b</sup> [31, 1983]	ND	S	2B
Trp-P-2 (3-Amino-1-methyl-5 <i>H</i> -pyrido[4,3- <i>b</i> ]indole) <sup>b</sup> [31, 1983]	ND	S	2B
Trypan blue <sup>b</sup> [8, 1975]	ND	S	2B
Uracil mustard	I	S	2B
Urethane <sup>b</sup> [7, 1974]	ND	S	2B
Vinblastine sulphate	I	I	3
Vincristine sulphate	I	I	3
Vinyl acetate <sup>b</sup> [39, 1986]	ND	I	3
Vinyl bromide <sup>b,e</sup> [39, 1986]	ND	S	2A
Vinyl chloride	S	S	1
Vinyl chloride-vinyl acetate copolymers <sup>d</sup> [19, 1979]	ND	I	3
4-Vinylcyclohexene <sup>b</sup> [39, 1986]	ND	L	3
Vinyl fluoride <sup>b</sup> [39, 1986]	ND	ND	3
Vinylidene chloride	I	L	3
Vinylidene chloride-vinyl chloride copolymers <sup>d</sup> [19, 1979]	ND	ND	3
Vinylidene fluoride <sup>b</sup> [39, 1986]	ND	I	3
<i>N</i> -Vinyl-2-pyrrolidone <sup>d</sup> [19, 1979]	ND	ND	3

**Table 1. (contd)**

Agent	Degree of evidence for carcinogenicity <sup>a</sup>		Overall evaluation <sup>a</sup>
	Human	Animal	
Wollastonite	I	L	3
Wood industries			
Carpentry and joinery	L		2B
Furniture and cabinet making	S	I	1
Lumber and sawmill industries (including logging)	I		3
Pulp and paper manufacture	I		3
2,4-Xylidine <sup>d</sup> [16, 1978]	ND	I	3
2,5-Xylidine <sup>d</sup> [16, 1978]	ND	I	3
Yellow AB <sup>d</sup> [8, 1975]	ND	I	3
Yellow OB <sup>d</sup> [8, 1975]	ND	L	3
Zearalenone <sup>b</sup> [31, 1983]	ND	L	3
Zectran <sup>d</sup> [12, 1976]	ND	I	3
Zineb <sup>d</sup> [12, 1976]	ND	I	3
Ziram <sup>d</sup> [12, 1976]	ND	I	3