

Code of Practice

March 2009
Review every 2 years

Carcinogens, Mutagens and Substances Toxic to Reproduction In Groups/Categories 1 and 2

Health and Safety Office
HSD021C



**UNIVERSITY OF
CAMBRIDGE**

Table of Carcinogens, Mutagens and Substances Toxic to Reproduction, in Groups or Categories 1 and 2.

Notes to the Table

This list of carcinogens, mutagens and substances toxic to reproduction has been compiled and consolidated from the following sources:

The lists from IARC, groups 1 (carcinogenic to humans), 2A (probably carcinogenic to humans).

The carcinogen lists in EH40, 2002, which is published by the HSE

The lists of carcinogens, mutagens and substances toxic to reproduction in The Dangerous Substances and Preparations (Safety) (Consolidation), as amended in 2004 SI 1417, and Chemicals (Hazard Information and Packaging for Supply) (Amendment) Regulations 2000, SI 2897 (known as CHIP Regulations)

The Control of Substances Hazardous to Health 2002 and amendment 2003.

The Approved Supply List, 2002.L129, published by the HSE.

Information supplied by manufacturers.

Where a substance is classified as Group 2 or Category 2 it is denoted by a tick in the table. For these substances the link to the health effect is probable.

Where a substance is in Group or Category 1, the link between the substance and the health effect is proven, and the table entry is 'Cat. 1'. Where one information source lists a substance as Category 1, and another as Category 2, the higher classification is listed here.

Risk or 'R' phrases and Safety or 'S' phrases are assigned to a substance in compliance with the CHIP Regulations to promote a uniform standard of labelling for users. 'R' phrases indicate the risks inherent in the substance, and include risks to health, the environment and in relation to fire and explosion. 'S' phrases indicate the precautions to be taken in using and handling the substance or preparation.

The key to the meaning of the 'R' and 'S' phrases is on the following pages. Note that these are correct as at October 2003 (CHIP3) and there have been some recent changes in wording, specifically for R40 and R68. These changes will be phased-in on MSDS's, and for some time there will be 'old' and 'new' sheets co-existing in the workplace. It is therefore essential to read the MSDS carefully to gain the precise meaning of the 'R' phrase being used.

Be particularly aware that not all hazardous substances that may be encountered at work will be classified in this way. In particular those that arise within the workplace, such as moulds, welding fume, intermediates in synthesis, etc will need to be assessed by yourselves.

The 'R' and 'S' phrase information is derived from several sources, and it must be borne in mind that there is frequently a time lag between a substance appearing on a list of carcinogens, etc, and the dissemination of the new 'R' and 'S' phrases. Therefore the absence of the 'R' phrase that indicates carcinogen, mutagen, etc is due to this time lag. This information is given as a supplement to your own research, not as a substitute in any way for the gathering and scrutiny of the manufacturer's data sheets.

Wherever possible synonyms for compounds have been included.

Risk Phrases

R1	Explosive when dry
R2	Risk of explosion by shock, friction, fire or other sources of ignition
R3	Extreme risk of explosion by shock, friction, fire or other sources of ignition
R4	Forms very sensitive explosive metallic compounds
R5	Heating may cause an explosion
R6	Explosive with or without contact with air
R7	May cause fire
R8	Contact with combustible material may cause fire
R9	Explosive when mixed with combustible material
R10	Flammable
R11	Highly flammable
R12	Extremely flammable
R14	Reacts violently with water
R14/15	Reacts violently with water, liberating extremely flammable gases
R15	Contact with water liberates extremely flammable gases
R15/29	Contact with water liberates toxic, extremely flammable gases
R16	Explosive when mixed with oxidising substances
R17	Spontaneously flammable in air
R18	In use, may form flammable/explosive vapour-air mixture
R19	May form explosive peroxides
R20	Harmful by inhalation
R20/21	Harmful by inhalation and in contact with skin
R20/21/22	Harmful by inhalation, in contact with skin and if swallowed
R20/22	Harmful by inhalation and if swallowed
R21	Harmful in contact with skin
R21/22	Harmful in contact with skin and if swallowed
R22	Harmful if swallowed

R23	Toxic by inhalation
R23/24	Toxic by inhalation and in contact with skin
R23/24/25	Toxic by inhalation, in contact with skin and if swallowed
R23/25	Toxic by inhalation and if swallowed
R24	Toxic in contact with skin
R24/25	Toxic in contact with skin and if swallowed
R25	Toxic if swallowed
R26	Very toxic by inhalation
R26/27	Very toxic by inhalation and in contact with skin
R26/27/28	Very toxic by inhalation, in contact with skin and if swallowed
R26/28	Very toxic by inhalation and if swallowed
R27	Very toxic in contact with skin
R27/28	Very toxic in contact with skin and if swallowed
R28	Very toxic if swallowed
R30	Can become highly flammable in use
R31	Contact with acids liberates toxic gas
R32	Contact with acids liberates very toxic gas
R33	Danger of cumulative effects
R34	Causes burns
R35	Causes severe burns
R36	Irritating to eyes
R36/37	Irritating to eyes and respiratory system
R36/37/38	Irritating to eyes, respiratory system and skin
R36/38	Irritating to eyes and skin
R37	Irritating to respiratory system
R37/38	Irritating to respiratory system and skin
R38	Irritating to skin
R39	Danger of very serious irreversible effects
R39/23	Toxic: danger of very serious irreversible effects through inhalation

Risk Phrases, continued

R39/23/24	Toxic: danger of very serious irreversible effects through inhalation and in contact with skin
R39/23/24/25	Toxic: danger of very serious irreversible effects through inhalation, in contact with skin and if swallowed
R39/23/25	Toxic: danger of very serious irreversible effects through inhalation and if swallowed
R39/24	Toxic: danger of very serious irreversible effects in contact with skin
R39/24/25	Toxic: danger of very serious irreversible effects in contact with skin and if swallowed
R39/25	Toxic: danger of very serious irreversible effects if swallowed
R39/26	Very Toxic: danger of very serious irreversible effects through inhalation
R39/26/27	Very Toxic: danger of very serious irreversible effects through inhalation and in contact with skin
R39/26/27/28	Very Toxic: danger of very serious irreversible effects through inhalation, in contact with skin and if swallowed
R39/26/28	Very Toxic: danger of very serious irreversible effects through inhalation and if swallowed
R39/27	Very Toxic: danger of very serious irreversible effects in contact with skin
R39/27/28	Very Toxic: danger of very serious irreversible effects in contact with skin and if swallowed
R39/28	Very Toxic: danger of very serious irreversible effects if swallowed
R40	Limited evidence of a carcinogenic effect
R41	Risk of serious damage to eyes
R42	May cause sensitisation by inhalation
R43	May cause sensitisation by skin contact
R42/43	May cause sensitisation by inhalation and skin contact
R44	Risk of explosion if heated under confinement

R45	May cause cancer
R46	May cause heritable genetic damage
R48	Danger of serious damage to health by prolonged exposure
R48/20	Harmful: danger of serious damage to health by prolonged exposure through inhalation
R48/20/21	Harmful: danger of serious damage to health by prolonged exposure through inhalation and in contact with skin
R48/20/21/22	Harmful: danger of serious damage to health by prolonged exposure through inhalation, in contact with skin and if swallowed
R48/20/22	Harmful: danger of serious damage to health by prolonged exposure through inhalation and if swallowed
R48/21	Harmful: danger of serious damage to health by prolonged exposure in contact with skin
R48/21/22	Harmful: danger of serious damage to health by prolonged exposure in contact with skin and if swallowed
R48/22	Harmful: danger of serious damage to health by prolonged exposure if swallowed
R48/23	Toxic: danger of serious damage to health by prolonged exposure through inhalation
R48/23/24	Toxic: danger of serious damage to health by prolonged exposure through inhalation and in contact with skin
R48/23/24/25	Toxic: danger of serious damage to health by prolonged exposure through inhalation, in contact with skin and if swallowed
R48/23/25	Toxic: danger of serious damage to health by prolonged exposure through inhalation and if swallowed
R48/24	Toxic: danger of serious damage to health by prolonged exposure in contact with skin
R48/24/25	Toxic: danger of serious damage to health by prolonged exposure in contact with skin and if swallowed

Risk Phrases, continued

R48/25	Toxic: danger of serious damage to health by prolonged exposure if swallowed
R49	May cause cancer by inhalation
R50	Very toxic to aquatic organisms
R50/53	Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment
R51	Toxic to aquatic organisms
R51/53	Toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment
R52	Harmful to aquatic organisms
R52/53	Harmful to aquatic organisms, may cause long-term adverse effects in the aquatic environment
R53	May cause long-term adverse effects in the aquatic environment
R54	Toxic to flora
R55	Toxic to fauna
R56	Toxic to soil organisms
R57	Toxic to bees
R58	May cause long-term adverse effects in the environment
R59	Dangerous for the ozone layer
R60	May impair fertility

R61	May cause harm to the unborn child
R62	Possible risk of impaired fertility
R63	Possible risk of harm to the unborn child
R64	May cause harm to breast-fed babies
R65	Harmful: may cause lung damage if swallowed
R66	Repeated exposure may cause skin dryness or cracking
R67	Vapours may cause drowsiness and dizziness
R68	Possible risk of irreversible effects
R68/20	Harmful: possible risk of irreversible effects through inhalation
R68/20/21	Harmful: possible risk of irreversible effects through inhalation and in contact with skin
R68/20/21/22	Harmful: possible risk of irreversible effects through inhalation, in contact with skin and if swallowed
R68/20/22	Harmful: possible risk of irreversible effects through inhalation and if swallowed
R68/21	Harmful: possible risk of irreversible effects in contact with skin
R68/21/22	Harmful: possible risk of irreversible effects in contact with skin and if swallowed
R68/22	Harmful: possible risk of irreversible effects if swallowed

Safety Phrases

S1	Keep locked up
S(1/2)	Keep locked up and out of the reach of children
S2	Keep out of the reach of children
S3	Keep in a cool place
S3/7	Keep container tightly closed in a cool place
S3/7/9	Keep container tightly closed in a cool, well-ventilated place
S3/9/14	Keep in a cool, well-ventilated place away from ... (incompatible materials to be indicated by the manufacturer)
S3/9/14/49	Keep only in the original container in a cool, well-ventilated place away from ... (incompatible materials to be indicated by the manufacturer)
S3/9/49	Keep only in the original container in a cool, well-ventilated place
S3/14	Keep in a cool place away from ... (incompatible materials to be indicated by the manufacturer)
S4	Keep away from living quarters
S5	Keep contents under ... (appropriate liquid to be specified by the manufacturer)
S6	Keep under ... (inert gas to be specified by the manufacturer)
S7	Keep container tightly closed
S7/8	Keep container tightly closed and dry
S7/9	Keep container tightly closed and in a well-ventilated place
S7/47	Keep container tightly closed and at temperature not exceeding ... °C (to be specified by the manufacturer)
S8	Keep container dry
S9	Keep container in a well-ventilated place
S12	Do not keep the container sealed
S13	Keep away from food, drink and animal feedingstuffs
S14	Keep away from ... (incompatible materials to be indicated by the manufacturer)
S15	Keep away from heat

S16	Keep away from sources of ignition - No smoking
S17	Keep away from combustible material
S18	Handle and open container with care
S20	When using do not eat or drink
S20/21	When using do not eat, drink or smoke
S21	When using do not smoke
S22	Do not breathe dust
S23	Do not breathe gas/fumes/vapour/spray (appropriate wording to be specified by the manufacturer)
S24	Avoid contact with skin
S24/25	Avoid contact with skin and eyes
S25	Avoid contact with eyes
S26	In case of contact with eyes, rinse immediately with plenty of water and seek medical advice
S27	Take off immediately all contaminated clothing
S27/28	After contact with skin, take off immediately all contaminated clothing, and wash immediately with plenty of ... (to be specified by the manufacturer)
S28	After contact with skin, wash immediately with plenty of ... (to be specified by the manufacturer)
S29	Do not empty into drains
S29/35	Do not empty into drains; dispose of this material and its container in a safe way
S29/56	Do not empty into drains, dispose of this material and its container at hazardous or special waste collection point
S30	Never add water to this product
S33	Take precautionary measures against static discharges
S35	This material and its container must be disposed of in a safe way
S36	Wear suitable protective clothing
S36/37	Wear suitable protective clothing and gloves

Safety Phrases, continued

S36/37/39	Wear suitable protective clothing, gloves and eye/face protection
S36/39	Wear suitable protective clothing and eye/face protection
S37	Wear suitable gloves
S37/39	Wear suitable gloves and eye/face protection
S38	In case of insufficient ventilation wear suitable respiratory equipment
S39	Wear eye/face protection
S40	To clean the floor and all objects contaminated by this material use ... (to be specified by the manufacturer)
S41	In case of fire and/or explosion do not breathe fumes
S42	During fumigation/spraying wear suitable respiratory equipment (appropriate wording to be specified by the manufacturer)
S43	In case of fire use ... (indicate in the space the precise type of fire-fighting equipment. If water increases the risk add – Never use water)
S45	In case of accident or if you feel unwell seek medical advice immediately (show the label where possible)
S46	If swallowed, seek medical advice immediately and show this container or label
S47	Keep at temperature not exceeding ... °C (to be specified by the manufacturer)
S47/49	Keep only in the original container at temperature not exceeding ... °C (to be specified by the manufacturer)

S48	Keep wet with ... (appropriate material to be specified by the manufacturer)
S49	Keep only in the original container
S50	Do not mix with ... (to be specified by the manufacturer)
S51	Use only in well-ventilated areas
S52	Not recommended for interior use on large surface areas
S53	Avoid exposure - obtain special instructions before use
S56	Dispose of this material and its container at hazardous or special waste collection point
S57	Use appropriate containment to avoid environmental contamination
S59	Refer to manufacturer/supplier for information on recovery/recycling
S60	This material and its container must be disposed of as hazardous waste
S61	Avoid release to the environment. Refer to special instructions/safety data sheet
S62	If swallowed, do not induce vomiting: seek medical advice immediately and show this container or label
S63	In case of accident by inhalation: remove casualty to fresh air and keep at rest
S64	If swallowed, rinse mouth with water (only if the person is conscious)

Notes on naming of compounds and placing within the alphabetical listing

Compounds appear in alphabetical order. In deciding the order, certain items are ignored, but others are not:

Items ignored when considering the alphabet	Items included when considering the alphabet
Numbers and	Bis
Greek letters, Capital letters (apart from an initial capital letter)	Di
N-	Tri
o- (meaning ortho-)	Tetra
m- (meaning meta-)	Cyclo
p- (meaning para-)	Iso
sec- (meaning secondary)	
tert- (meaning tertiary)	

Thus the compound

N-(7-fluoro-3,4-dihydro-3-oxo-4-prop-2-ynyl-2H-1,4-benzoxazin-6-yl)cyclohex-1-ene-1,2-dicarboxamide is stripped of its numbers and capital letters and becomes: Fluorodihydrooxopropynylbenzoxazinylcyclohexenedicarboxamide, for the purpose of placing it in alphabetical order.

Further examples:

o-Aminoazotoluene is found in 'A' and not o-.

N,N-Bis(2-chloroethyl)-2-naphthylamine is found in 'B' and not 'N'.

Substance suspected or confirmed to be carcinogenic, mutagenic or toxic to reproduction	CAS No.	Carcinogen	Mutagen	Toxic to Reproduction	R Phrases (where known)	S Phrases (where known)
A						
AAT (<i>alternative names</i> 4-o-tolylazo-o-toluidine, 4-amino-2',3-dimethylazobenzene, fast garnet GBC base, o-aminoazotoluene)	97-56-3	✓			45,43	53,45
Acrylamide (<i>alternative name</i> prop-2-enamide)	79-06-1	✓	✓		45,46,24/25,48/23/24/25	53,45
Acrylonitrile	107-13-1	✓			45,11,23/24/25,37/38,41,43,51/53	9,16,53,45,61
Adriamycin	23214-92-8	✓				
Aflatoxins	1402-68-2	Cat. 1				
Alcoholic beverages		Cat. 1				
Alkanes, C ₁ – C ₅ , petroleum gas		✓				
5-Allyl-1, 3-benzodioxole (<i>alternative name</i> safrole)	94-59-7	✓			45,22,40	53,45
Allyl trichloride (<i>alternative names</i> , glycerol trichlorohydrin, 1,2,3-trichloropropane)	96-18-4	✓			20/21/22	37/39
4-Aminoazobenzene (<i>alternative name</i> 4-phenylazoaniline)	60-09-3	✓			45,50/53	53,45,60,61
o-Aminoazotoluene (<i>alternative names</i> 4-o-tolylazo-o-toluidine, 4-amino-2',3-dimethylazobenzene, fast garnet GBC base, AAT)	97-56-3	✓			45,43	53,45
4-Aminobiphenyl (<i>alternative names</i> 4-aminodiphenyl, biphenyl-4-ylamine, xenylamine) and its salts	92-67-1	Cat. 1			45,22	53,45
4-Amino-2',3-dimethylazobenzene (<i>alternative names</i> 4-o-tolylazo-o-toluidine, fast garnet GBC base, AAT, o-aminoazotoluene)	97-56-3	✓			45,43	53,45
Aminoethylene (<i>alternative names</i> , ethylenimine azirane, aziridine, dimethyleneimine, ethyleneimine)	151-56-4	✓	✓		45,46,11,26/27/28,34,51/53	53,45,61
4-Amino-3-fluorophenol	399-95-1	✓			45,22,43,51/53	53,45,61
2-Amino-3-methylimidazo [4,5-f] quinoline (IQ)	76180-96-6	✓				
2-Aminonaphthalene (<i>alternative names</i> β-naphthylamine, 2-naphthylamine)	91-59-8	Cat. 1			45,22,51/53	53,45,61

Substance suspected or confirmed to be carcinogenic, mutagenic or toxic to reproduction	CAS No.	Carcinogen	Mutagen	Toxic to Reproduction	R Phrases (where known)	S Phrases (where known)
2-Aminonaphthalene, salts of (<i>alternative names</i> β -naphthylamine, 2-naphthylamine)		Cat. 1			45,22,51/53	53,45,61
2-Aminotoluene (<i>alternative name</i> o-toluidine)	95-53-4	✓			45,23/25,36,50	53,45,61
Ammonium dichromate	7789-09-05	✓	✓		49,46,1,8,21,25,26,37/38,41,43,50/53	53,45,60,61
Analgesic mixtures containing phenacetin	62-44-2	Cat. 1				
Androgenic (anabolic) steroids		✓				
o-Anisidine (<i>alternative name</i> 2-Methoxyaniline)	90-04-0	✓			45,23/24/25	53,45
Anthracene oil	65996-91-0	✓				
Aristolochic acids (naturally occurring mixtures of)		✓				
Aromatic hydrocarbons, mixed, derived from petroleum production		✓				
Arsenic	7440-38-2	Cat. 1			23/25	20/21,28,45
Arsenic acid and its salts	7778-3904	Cat. 1			45,23/25,50/53	53,45,60,61
Arsenic pentoxide (<i>alternative name</i> diarsenic pentaoxide)	1303-28-2	Cat. 1			45,23/25,50/53	53,45,60,61
Arsenic trioxide	1327-53-3	Cat. 1			45,23/25,50/53	53,45,60,61
Asbestos (all types)	1332-21-4	Cat. 1			45,48/23	53,45
Auramine manufacture		Cat. 1				
Azacitidine	320-67-2	✓				
Azathioprine	446-86-6	Cat. 1				
Azirane (<i>alternative names</i> aminoethylene, aziridine, dimethyleneimine ethylenimine, ethyleneimine)	151-56-4	✓	✓		45,46,11,26/27/28,34,51/53	53,45,61
Aziridine (<i>alternative names</i> aminoethylene, azirane, dimethyleneimine, ethylenimine, ethyleneimine)	151-56-4	✓	✓		45,46,11,26/27/28,34,51/53	53,45,61
Azobenzene	103-33-3	✓			45,20/22,48/22,50/53	53,45,60,61
B						
BCME (<i>alternative name</i> bis(chloromethyl) ether, oxybis(chloromethane))	542-88-1	Cat. 1			45,10,22,24,26	53,45
BCNU (<i>alternative name</i> bischloroethyl nitrosourea)	154-93-8	✓				
Benzal chloride	95-87-3	✓				

Substance suspected or confirmed to be carcinogenic, mutagenic or toxic to reproduction	CAS No.	Carcinogen	Mutagen	Toxic to Reproduction	R Phrases (where known)	S Phrases (where known)
Benzene	71-43-2	Cat. 1			45,11,48/23/24/25	53,45
Benzene carbonyl chloride (<i>alternative name</i> benzoyl chloride)	98-88-4	✓			34	26,45
Benzidine (<i>alternative names</i> 4,4'-diaminobiphenyl, 1,1'-biphenyl-4,4'-diamine, biphenyl-4,4'-ylenediamine)	92-87-5	Cat. 1			45,22,50/53	53,45,60,61
Benzidine salts		Cat. 1			45,22,50/53	53,45,60,61
Benzidine based azo dyes (<i>alternative names</i> 4,4'-diarylazobiphenyl dyes)		✓			45	53,45
Benzo-(e) acephenanthylene (<i>alternative name</i> benzo (b)-fluoranthene)	205-99-2	✓			45,50/53	53,45,60,61
Benzo-(a)-anthracene	56-55-3	✓			45,50/53	53,45,60,61
Benzo (d,e,f) chrysene (<i>alternative name</i> benzo (a) pyrene)	50-32-8	✓	✓	✓	45,46,60,61,50/53	53,45,60,61
Benzo-(b)-fluoranthene (<i>alternative name</i> benzo (e) acephenanthylene)	205-99-2	✓			45,50/53	53,45,60,61
Benzo-(j)-fluoranthene	205-82-3	✓			45,50/53	53,45,60,61
Benzo-(k)-fluoranthene	207-08-9	✓			45,50/53	53,45,60,61
Benzo-(a)-pyrene (<i>alternative name</i> benzo (d,e,f) chrysene)	50-32-8	✓	✓	✓	45,46,60,61,50/53	53,45,60,61
Benzo-(e)-pyrene	192-97-2	✓			45,50/53	53,45,60,61
Benzotrichloride (<i>alternative name</i> α,α,α -trichlorotoluene)	98-07-7	✓			22,23,37/38,41,45	53,45
Benzoyl chloride (<i>alternative name</i> benzene carbonyl chloride)	98-88-4	✓			34	26,45
Benzyl chloride (<i>alternative name</i> α chlorotoluene)	100-44-7	✓			22,23,37/38,41,45,48/22	53,45
Beryllium	7440-41-7	Cat. 1			49,25,26,36/37/38,43,48/23	53,45
Beryllium compounds (except aluminium beryllium silicates)		Cat. 1			49,25,26,36/37/38,43,48/23,51/53	53,45,61
Beryllium oxide	1304-56-9	✓			49,25,26,36/37/38,43,48/23	53,45
Betel quid with tobacco		Cat. 1				
Binapacryl (ISO) (<i>alternative name</i> 2-sec-butyl-4,6-dinitrophenyl-3-methylcrotonate)	485-31-4			✓	61,21/22,50/53	53,45,60,61
2,2'-Bioxirane (<i>alternative name</i> 1,2:3,4 Diepoxybutane)	1464-53-5	✓	✓		45,46,24/25/26,34	53,45

Substance suspected or confirmed to be carcinogenic, mutagenic or toxic to reproduction	CAS No.	Carcinogen	Mutagen	Toxic to Reproduction	R Phrases (where known)	S Phrases (where known)
1,1'-Biphenyl-4,4'-diamine (<i>alternative names</i> benzidine, 4,4'-diaminobiphenyl, biphenyl-4,4'-ylenediamine)	92-87-5	Cat. 1			45,22,50/53	53,45,60,61
Biphenyl-4-ylamine (<i>alternative names</i> 4-aminodiphenyl, 4-aminobiphenyl, xenylamine) and its salts	92-67-1	Cat. 1			45,22	53,45
Biphenyl-4,4'-ylenediamine (<i>alternative names</i> benzidine, 4,4'-diaminobiphenyl, 1,1'-biphenyl-4,4'-diamine)	92-87-5	Cat. 1			45,22,50/53	53,45,60,61
N,N-Bis(2-chloroethyl)-2-naphthylamine (<i>alternative name</i> Chlornaphazine)	494-03-1	Cat. 1				
Bis(chloromethyl) ether (<i>alternative names</i> BCME, oxybis (chloromethane))	542-88-1	Cat. 1			45,10,22,24,26	53,45
Bischloroethyl nitrosourea (BCNU)	154-93-8	✓				
Bis (2-ethylhexyl) phthalate (<i>alternative names</i> DEHP, di-(2-ethylhexyl) phthalate)	117-81-7			✓	60,61	53,45
Bis(4-fluorophenyl)-(methyl)-(1H-1,2,4-triazol-1-ylmethyl)-silane (<i>alternative name</i> flusilazole (ISO))	85509-19-9			✓	61,22,40,51/53	53,45,61
2,2-Bis(4-hydroxyphenyl)-4-methylpentane (<i>alternative name</i> 4,4'-isobutylethylidenediphenol)	6807-17-6			✓	60,36,50/53	53,45,60,61
Bis(2-methoxyethyl) ether	111-96-6			✓	60,61,10,19	53,45
Bis (2-methoxyethyl)phthalate	117-82-8			✓	61,62	53,45
Bromoethene (<i>alternative names</i> bromoethylene, vinyl bromide)	593-60-2	✓			45,12	53,45
Bromoethylene (<i>alternative names</i> vinyl bromide, bromoethene)	593-60-2	✓			45,12	53,45
2-Bromopropane	75-26-3			Cat. 1	60,11,48/20,66	16,53,45
Busulphan (<i>alternative names</i> 1,4-butanediol dimethylsulfonate, myleran)	55-98-1	Cat. 1				
Buta-1,3-diene	106-99-0	Cat. 1	✓		45,46,12	53,45
1,4-Butanediol dimethylsulfonate (<i>alternative names</i> busulphan; myleran)	55-98-1	Cat. 1				
Butane[1], isobutane[2], containing $\geq 0.1\%$ butadiene		Cat. 1	✓		45,46,12	53,45
6-sec-butyl-2,4-dinitrophenol (<i>alternative name</i> Dinoseb),	88-85-7			✓	61,62,24/25,36,44,50/53	53,45,60,61
6-sec-butyl-2,4-dinitrophenol (<i>alternative name</i> Dinoseb), salts and esters of				✓	61,62,24/25,36,44,50/53	53,45,60,61

Substance suspected or confirmed to be carcinogenic, mutagenic or toxic to reproduction	CAS No.	Carcinogen	Mutagen	Toxic to Reproduction	R Phrases (where known)	S Phrases (where known)
2-sec-butyl-4,6-dinitrophenyl-3-methylcrotonate (ISO) (<i>alternative name</i> Binapacryl)	485-31-4			✓		
2-tert-butyl-4,6-dinitrophenol (<i>alternative name</i> Dinoterb)	1420-07-1			✓	61,24,28,44,50/53	53,45,60,61
2-tert-butyl-4,6-dinitrophenol (<i>alternative name</i> Dinoterb) salts and esters of				✓	61,24,28,50/53	53,45,60,61
Butyl(RS)-2-[4-(5-trifluoromethyl-2-pyridyloxy) phenoxy] propionate (<i>alternative name</i> Fluazifop-butyl (ISO))	69806-50-4			✓	61,50/53	53,45,60,61
C						
Cadmium	7440-43-9	Cat. 1				
Cadmium chloride	10108-64-2	Cat. 1	✓	✓	45,46,60,61,25,26,48/23/25,50/53	53,45,60,61
Cadmium fluoride	7790-79-6	Cat. 1	✓	✓	45,46,60,61,25,26,48/23/25,50/53	53,45,60,61
Cadmium oxide	1306-19-0	Cat. 1			49,22,48/23/25	53,45
Cadmium sulphate	10124-36-4	Cat. 1			49,22,48/23/25,50/53	53,45,60,61
Calcium chromate	13765-19-0	Cat. 1			45,22,50/53	53,45,60,61
Captafol (ISO) (<i>alternative name</i> 1,2,3,6-tetrahydro-N-(1,1,2,2,-tetrachloroethylthio)phthalimide)	2425-06-1	✓			45,43,50/53	53,45,60,61
Carbadox (INN) (<i>alternative names</i> methyl 3-(quinoxalin-2-methylene) carbazate 1,4-dioxide, 2-(methoxycarbonylhydrazonomethyl)quinoxaline 1,4-dioxide)	6804-07-5	✓			45,11,22	53,45
Carbon monoxide	630-08-0			Cat. 1	61,12,23,48/23	53,45
CCNU (<i>alternative names</i> 1-(2-Chloroethyl)-3-cyclohexyl-1-nitrosourea, semustine)	13010-47-4	✓				
Cellosolve (<i>alternative names</i> ethylene glycol monoethyl ether, 2-ethoxyethanol, oxitol)	110-80-5			✓	60,61,10,20/21/22	53,45
Chlorambucil	305-03-3	Cat. 1				
Chloramphenicol	56-75-7	✓				
Chlornaphazine (<i>alternative name</i> N,N-Bis(2-chloroethyl)-2-naphthylamine)	494-03-1	Cat. 1				

Substance suspected or confirmed to be carcinogenic, mutagenic or toxic to reproduction	CAS No.	Carcinogen	Mutagen	Toxic to Reproduction	R Phrases (where known)	S Phrases (where known)
p-Chloroaniline (<i>alternative name</i> 4-chloroaniline)	106-47-8	✓			45,23/24/25,43,50/53	53,45,60,61
4-Chloroaniline (<i>alternative name</i> p-chloroaniline)	106-47-8	✓			45,23/24/25,43,50/53	53,45,60,61
2-Chloroallyl diethyldithiocarbamate (<i>alternative name</i> sulfallate ISO)	95-06-7	✓			45,22,50/53	53,45,60,61
Chlorodimethyl ether, (<i>alternative name</i> chloromethyl methyl ether)	107-30-2	Cat. 1			45,11,20/21/22	53,45
1-Chloro-2,3-epoxypropane (<i>alternative name</i> epichlorohydrin)	106-89-8	✓			45,10,23/24/25,34,43	53,45
(R)1-Chloro-2,3-epoxypropane	51594-55-9	✓			45,10,23/24/25,34,43	53,45
Chloroethene (<i>alternative names</i> vinyl chloride, chloroethylene)	75-01-4	Cat. 1			45,12	53,45
Chloroethylene (<i>alternative names</i> vinyl chloride, chloroethene)	75-01-4	Cat. 1			45,12	53,45
1-(2-Chloroethyl)-3-cyclohexyl-1-nitrosourea (<i>alternative name</i> CCNU)	13010-47-4	✓				
6-(2-Chloroethyl)-6-(2-methoxyethoxy)-2,5,7,10-tetraoxa-6-silaundecane (<i>alternative name</i> etacelasil)	37894-46-5			✓	61,22,48/22	53,45
1-(2-Chloroethyl)-3-(4-methylcyclohexyl)-1-nitrosourea (<i>alternative names</i> methyl CCNU, Semustine)	13909-09-6	Cat. 1				
Chloromethyl methyl ether, (<i>alternative name</i> chlorodimethyl ether)	107-30-2	Cat. 1			45,11,20/21/22	53,45
(2RS,3RS)-3-(2-Chlorophenyl)-2-(4-fluorophenyl)-[(1H-1,2,4-triazol-1-yl)-methyl]oxirane	106325-08-0			✓		
α Chlorotoluene (<i>alternative name</i> benzyl chloride)	100-44-7	✓			22,23,37/38,40,41,45,48/22	53,45
4-Chloro-o-toluidine	95-69-2	✓				
Chlorozotocin	54749-90-5	✓				
Chromic chromate (<i>alternative name</i> chromium III chromate, dichromium tris(chromate))	24613-89-6	Cat. 1			45,8,35,43,50/53	53,45,60,61
Chromic oxychloride (<i>alternative name</i> chromyl chloride)	14977-61-8	Cat. 1	✓		49,46,8,35,43,50/53	53,45,60,61
Chromium VI compounds		Cat. 1			49,43,50/53	53,45,60,61
Chromium III chromate (<i>alternative name</i> chromic chromate, dichromium tris (chromate))	24613-89-6	Cat. 1			45,8,35,43,50/53	53,45,60,61
Chromium trioxide	1333-82-0	Cat. 1			49,8,25,35,43,50/53	53,45,60,61

Substance suspected or confirmed to be carcinogenic, mutagenic or toxic to reproduction	CAS No.	Carcinogen	Mutagen	Toxic to Reproduction	R Phrases (where known)	S Phrases (where known)
Chromyl chloride (<i>alternative name</i> chromic oxychloride)	14977-61-8	Cat. 1	✓		49,8,25,35,43,50/53	53,45,60,61
Chrysene	218-01-9	✓			45,50/53	53,45,60,61
C.I. Basic red 9 (<i>alternative name</i> 4,4'-(4-iminocyclohexa-2,5-dienyllidenemethylene)dianiline hydrochloride)	560-61-9	✓			45	53,45
Ciclosporin	59865-13-3	Cat. 1				
C.I. Direct black 38 (<i>alternative name</i> disodium 4-amino-3-[[4'-[(2,4-diaminophenyl)azo][1,1'-biphenyl]-4-yl]azo]-5-hydroxy-6-(phenylazo)naphthalene-2,7-disulphonate)	1937-37-7	✓			45,63	53,45
C.I. Direct blue 6 (<i>alternative name</i> tetrasodium 3,3'-[[1,1'-biphenyl]-4,4'-diylbis(azo)]bis[5-amino-4-hydroxynaphthalene-2,7-disulphonate)	2602-46-2	✓			45,63	53,45
C.I. Direct brown 95 (<i>alternative name</i> disodium {5-[(4'-((2,6-hydroxy-5-sulphophenyl)azo)phenyl)azo(1'-biphenyl)-4-yl]azo}salicylato(4-)}cuprate (2-))	16071-86-6	✓			45	53,45
C.I. Direct red 28 (<i>alternative name</i> disodium 3,3'-[[1,1' biphenyl]-4,4'-diylbis(azo)]bis(4-aminonaphthalene-1-sulphonate)	573-58-0	✓			45,63	53,45
C.I. Disperse blue 1 (<i>alternative name</i> 1,4,5,8-tetraaminoanthraquinone)	2475-45-8	✓			45,38,41,43	53,45
C.I. Pigment Red 104 (<i>alternative name</i> lead chromate molybdate sulphate red)	12656-85-8			Cat. 1	61,33,40,50/53,62	53,45,60,61
C.I. Pigment yellow 34 (<i>alternative name</i> lead sulphochromate yellow)	1344-37-2			Cat. 1	61,33,40,50/53,62	53,45,60,61
Cisplatin	15663-27-1	✓				
Clarified oils (petroleum)		✓				
Clonorchis sinensis, infection with		✓				
Coal liquids		✓				
Coal soots, coal tar, pitch, and coal tar fumes		Cat. 1			45	53,45
Cobalt dichloride	7646-79-9	✓			49,22,42/43,50/53	22,53,45,60,61
Cobalt sulphate	10124-43-3	✓			49,22,42/43,50/53	22,53,45,60,61
Coke (coal tar), pitches		Cat. 1				

Substance suspected or confirmed to be carcinogenic, mutagenic or toxic to reproduction	CAS No.	Carcinogen	Mutagen	Toxic to Reproduction	R Phrases (where known)	S Phrases (where known)
Creosotes (from coal tars), creosote oil	8001-58-9	✓				
Cycloheximide	66-81-9			✓	61,28,51/53,68	53,45,61
Cyclophosphamide	6055-19-2	Cat. 1				
D						
DBP (<i>alternative name</i> dibutyl phthalate)	84-74-2			✓	61,50,62	53,45,61
DEHP (<i>alternative names</i> bis (2-ethylhexyl) phthalate, di-(2-ethylhexyl) phthalate)	117-81-7			✓	60,61	53,45
4,4'-Diaminobiphenyl, (<i>alternative names</i> benzidine 1,1'-biphenyl-4,4'-diamine, biphenyl-4,4'-ylenediamine)	92-87-5	Cat. 1			45,22,50/53	53,45,60,61
4,4'-Diaminodiphenylmethane (<i>alternative name</i> 4,4'-methylene dianiline)	101-77-9	✓			45,39/23/24/25,43,48/20/21/22,51/53	53,45,61
1,3 Diamino 4-methyl benzene (<i>alternative names</i> toluene-2,4-diammonium sulphate, 4-methyl-m-phenylenediamine sulphate)	65321-67-7	✓			45,21,25,36,43,51,53	53,45,61
Diaminotoluene	25376-45-8	✓			45,20/21,25,26,43,51/53	53,45,61
o-Dianisidine (<i>alternative name</i> 3,3'-dimethoxybenzidine)	119-90-4	✓			45,22	53,45
o-Dianisidine salts (<i>alternative name</i> 3,3'-dimethoxybenzidine)		✓			45,22	53,45
o-Dianisidine-based azodyes		✓			45	53,45
Diarsenic pentaoxide (<i>alternative name</i> arsenic pentoxide)	1303-28-2	Cat. 1			45,23/25,50/53	53,45,60,61
Diarsenic trioxide	1327-53-3	Cat. 1			45,28,34,50/53	53,45,60,61
4,4'-Diarylazobiphenyl dyes (<i>alternative names</i> benzidine based azo dyes)		✓			45	53,45
Diazomethane	334-88-3	✓			45	53,45
Dibenz[a,h] anthracene	53-70-3	✓			45,50/53	53,45,60,61
1,2-Dibromo-3-chloropropane	96-12-8	✓	✓	Cat. 1	45,46,60,25,48/20/22,52/53	53,45,61
1,2-Dibromoethane (<i>alternative name</i> ethylene dibromide)	106-93-4	✓			45,23/24/25,36/37/38,51/53	53,45,61
2,3-Dibromo-1-propanol	96-13-9	✓			45,20/22,24,52/53,62	53,45,61
Dibutyl phthalate (<i>alternative name</i> DBP)	84-74-2			✓	61,50,62	53,45,61

Substance suspected or confirmed to be carcinogenic, mutagenic or toxic to reproduction	CAS No.	Carcinogen	Mutagen	Toxic to Reproduction	R Phrases (where known)	S Phrases (where known)
3,3'-Dichlorobenzidine (<i>alternative name</i> 3,3'-dichlorobiphenyl-4,4'-ylenediamine)	91-94-1	✓			45,21,43,50/53	53,45,60,61
3,3'-Dichlorobenzidine salts (<i>alternative name</i> 3,3'-dichlorobiphenyl-4,4'-ylenediamine)		✓			45,21,43,50/53	53,45,60,61
3,3' Dichlorobiphenyl-4,4'-ylenediamine (<i>alternative name</i> 3,3'-dichlorobenzidine and its salts)	91-94-1	✓			45,21,43,50/53	53,45,60,61
1,4-Dichlorobut-2-ene	764-41-0	✓			45,24/25,26,34,50/53	53,45,60,61
β,β'-Dichlorodiethyl sulphide (<i>alternative name</i> Mustard gas)	505-60-2	Cat. 1				
1,2-Dichloroethane (<i>alternative name</i> ethylene dichloride)	107-06-2	✓			45,11,22,36/37/38	53,45
2,2'-Dichloro-4,4'-methylenedianiline (<i>alternative names</i> MbOCA, 4,4'-methylene bis(2-chloroaniline), MOCA), and its salts	101-14-4	✓			45,22,50/53	53,45,60,61
2,4-Dichlorophenyl 4-nitrophenyl ether (<i>alternative name</i> Nitrofen (ISO))	1836-75-5	✓		✓	45,61,22,50/53	53,45,60,61
N-3,5-dichlorophenyl-5-vinyl-1,3-oxazolidine-2,4-dione (<i>alternative name</i> Vinclozolin (ISO))	50471-44-8			✓	60,61,40,43,51/53	53,45,61
3,3'-Dichlorophenyl-4,4'-ylenediamine, dihydrochloride salts of	612-83-9	✓			45,21,43,50/53	53,45,60,61
3,3'-Dichlorophenyl-4,4'-ylenediamine, sulphate salts of	64969-34-2	✓			45,21,43,50/53	53,45,60,61
1,3-Dichloro-2-propanol	96-23-1	✓			45,21,25	53,45
Dichromium tris(chromate) (<i>alternative name</i> chromium III chromate, chromic chromate)	24613-89-6	Cat. 1			45,8,35,43,50/53	53,45,60,61
1,2:3,4 Diepoxybutane (<i>alternative name</i> 2,2'-bioxirane)	1464-53-5	✓	✓		45,46,24/25/26,34	53,45
Diesel engine exhaust		✓				
Di-(2-ethylhexyl) phthalate (<i>alternative names</i> DEHP, bis (2-ethylhexyl) phthalate)	117-81-7			✓		
Diethyl stilboestrol	56-53-1	Cat. 1				
Diethyl sulphate	64-67-5	✓	✓		45,46,20/21/22,34	53,45
3,3'-Dimethoxybenzidine (<i>alternative name</i> o-dianisidine) and its salts	119-90-4	✓			45,22	53,45
N,N-Dimethylacetamide	127-19-5			✓	61,20/21	53,45
3,3'-Dimethylbenzidine (<i>alternative name</i> o-tolidine)	119-93-7	✓			45,22,51/53	53,45,61

Substance suspected or confirmed to be carcinogenic, mutagenic or toxic to reproduction	CAS No.	Carcinogen	Mutagen	Toxic to Reproduction	R Phrases (where known)	S Phrases (where known)
3,3'-Dimethylbenzidine, salts of (<i>alternative name</i> o-tolidine)		✓			45,22,51/53	53,45,61
Dimethylcarbamoyl chloride	79-44-7	✓			45,22,23,36/37/38	53,45
Dimethyleneimine (<i>alternative names</i> aminoethylene, azirane, aziridine, ethylenimine, ethyleneimine)	151-56-4	✓	✓		45,46,11,26/27/28,34,51/53	53,45,61
Dimethyl formamide (<i>alternative names</i> N,N-dimethyl formamide, DMF)	68-12-2			✓	61,20/21,36	53,45
N,N-Dimethyl formamide (<i>alternative names</i> dimethyl formamide, DMF)	68-12-2			✓	61,20/21,36	53,45
1,1 Dimethyl hydrazine (<i>alternative name</i> N,N-dimethylhydrazine)	57-14-7	✓			45,11,23/25,34,51/53	53,45,61
1,2-Dimethylhydrazine	540-73-8	✓			45,23/24/25,51/53	53,45,61
N,N-Dimethylhydrazine (<i>alternative name</i> 1,1 dimethyl hydrazine)	57-14-7	✓			45,11,23/25,34,51/53	53,45,61
Dimethylnitrosamine (<i>alternative name</i> N-nitroso dimethylamine)	62-75-9	✓			45,25,26,48/25,51/53	53,45,61
Dimethylsulphamoyl chloride	13360-57-1	✓			45,21/22,26,34	53,45
Dimethyl sulphate	77-78-1	✓			45,25,26,34,43	53,45
2,6-Dimethyl-4-tridecylmorpholine (<i>alternative name</i> Tridemorph (ISO))	24602-86-6			✓	61,20/22,38,50/53	53,45,60,61
Dinickel trioxide	1314-06-3	Cat. 1			49,43,53	53,45,61
2,3-Dinitrotoluene	602-01-7	✓			45,23/24/25,48/22,51/53,62	53,45,61
2,4-Dinitrotoluene	121-14-2	✓			45,23/24/25,48/22,62	53,45,61
2,5-Dinitrotoluene	619-15-8	✓			45,23/24/25,48/22,51/53,62	53,45,61
2,6-Dinitrotoluene	606-20-2	✓			45,23/24/25,48/22,52/53,62	53,45,61
3,4-Dinitrotoluene	610-39-9	✓			45,23/24/25,51/53,62	53,45,61
3,5-Dinitrotoluene	618-85-9	✓			45,23/24/25,48/22,52/53,62	53,45,61
Dinoseb (<i>alternative name</i> 6-sec-butyl-2,4-dinitrophenol)	88-85-7			✓	61,62,24/25,36,44,50/53	53,45,60,61

Substance suspected or confirmed to be carcinogenic, mutagenic or toxic to reproduction	CAS No.	Carcinogen	Mutagen	Toxic to Reproduction	R Phrases (where known)	S Phrases (where known)
Dinoseb (<i>alternative name</i> 6-sec-butyl-2,4-dinitrophenol), salts and esters of				✓	61,62,24/25,36,44,50/53	53,45,60,61
Dinoterb (<i>alternative name</i> 2-tert-butyl-4,6-dinitrophenol)	1420-07-1			✓	61,24,28,44,50/53	53,45,60,61
Dinoterb (<i>alternative name</i> 2-tert-butyl-4,6-dinitrophenol) salts and esters of				✓	61,24,28,50/53	53,45,60,61
1,2 Diphenyl hydrazine (<i>alternative name</i> hydrazobenzene)	122-66-7	✓			45,22,50/53	53,45,60,61
Disodium 4-amino-3-[[4'-[(2,4-diaminophenyl)azo][1,1'-biphenyl]-4-yl]azo]-5-hydroxy-6-(phenylazo)naphthalene-2,7-disulphonate (<i>alternative name</i> C.I. Direct black 38)	1937-37-7	✓			45,63	53,45
Disodium 3,3'-[[1,1' biphenyl]-4,4'-diylbis(azo)]bis(4-aminonaphthalene-1-sulphonate (<i>alternative name</i> C.I. Direct red 28)	573-58-0	✓			45,63	53,45
Disodium {5-[(4'-((2,6-hydroxy-5-sulphophenyl)azo) phenyl)azo (1'-biphenyl)-4-yl]azo]salicylato(4-)}cuprate (2-) (<i>alternative name</i> C.I. Direct brown 95)	16071-86-6	✓			45	53,45
Distillates (coal tar), many types		Cat. 1				
Distillates (petroleum), most types		Cat. 1				
DMF (<i>alternative names</i> N,N-dimethyl formamide, Dimethyl formamide)	68-12-2			✓	61,20/21,36	53,45
E						
Epichlorohydrin (<i>alternative name</i> 1-Chloro-2,3-epoxypropane)	106-89-8	✓			45,10,23/24/25,34,43	53,45
Epoxyethane (<i>alternative names</i> ethylene oxide, oxirane)	75-21-8	Cat. 1	✓		45,46,12,23,36/37/38	53,45
(Epoxyethyl) benzene (<i>alternative names</i> styrene oxide, phenyloxirane)	96-09-3	✓			45,21,36	53,45
1,2-Epoxy-3-phenoxypropane (<i>alternative names</i> 2,3-epoxypropyl phenyl ether, phenyl glycidyl ether)	122-60-1	✓			45,20,37/38,43,52/53	53,45
1,2-Epoxypropane (<i>alternative names</i> propylene oxide, methyloxirane)	75-56-9	✓	✓		45,46,12,20/21/22,36/37/38	53,45
2,3-Epoxypropan-1-ol (<i>alternative name</i> glycidol)	556-52-5	✓		✓	45,60,21/22,23,36/37/38	53,45
R-2,3-epoxy-1-propanol	57044-25-4	✓		✓	45,60,2,21/22,23,24	53,45

Substance suspected or confirmed to be carcinogenic, mutagenic or toxic to reproduction	CAS No.	Carcinogen	Mutagen	Toxic to Reproduction	R Phrases (where known)	S Phrases (where known)
2,3-Epoxypropyl phenyl ether (<i>alternative names</i> phenyl glycidyl ether, 1,2-epoxy-3-phenoxypropane)	122-60-1	✓			45,20,37/38,43,52/53	53,45
Epstein-Barr virus		Cat. 1				
Erionite	66733-21-9	Cat. 1			45	53,45
Etacelasil (<i>alternative name</i> 6-(2-Chloroethyl)-6-(2-methoxyethoxy)-2,5,7,10-tetraoxa-6-silaundecane)	37894-46-5			✓	61,22,48/22	53,45
2-Ethoxyethanol (<i>alternative names</i> ethylene glycol monoethyl ether, cellosolve, oxitol)	110-80-5			✓	60,61,10,20/21/22	53,45
2-Ethoxyethyl acetate (<i>alternative name</i> ethyl glycol acetate)	111-15-9			✓	60,61,20/21/22	53,45
Ethyl carbamate (<i>alternative name</i> urethane (INN))	51-79-6	✓			45	53,45
Ethylene dibromide (<i>alternative name</i> 1,2-Dibromoethane)	106-93-4	✓			45,23/24/25,36/37/38,51/53	53,45,61
Ethylene dichloride (<i>alternative name</i> 1,2-Dichloroethane)	107-06-2	✓			45,11,22,36/37/38	53,45
Ethylene glycol monoethyl ether (<i>alternative names</i> 2-ethoxyethanol, cellosolve, oxitol)	110-80-5			✓	60,61,10,20/21/22	53,45
Ethylene glycol monomethyl ether (<i>alternative names</i> 2-methoxyethanol, methyl cellosolve)	109-86-4			✓	60,61,10,20/21/22	53,45
Ethyleneimine (<i>alternative names</i> aminoethylene, azirane, aziridine, dimethyleneimine, ethyleneimine)	151-56-4	✓	✓		45,46,11,26/27/28,34,51/53	53,45,61
Ethylene oxide (<i>alternative names</i> oxirane, epoxyethane)	75-21-8	Cat. 1	✓		45,46,12,23,36/37/38	53,45
Ethylene thiourea (<i>alternative names</i> imidazolidine-2-thione, 2-imidazoline-2-thiol)	96-45-7			✓	61,22	53,45
Ethylene trichloride (<i>alternative names</i> Trichloroethylene, Trike, Trilene)	79-01-6	✓			45,36/38,52/53,67	53,45,61
Ethyleneimine (<i>alternative names</i> aminoethylene, azirane, aziridine, dimethyleneimine, ethyleneimine)	151-56-4	✓	✓		45,46,11,26/27/28,34,51/53	53,45,61
Ethyl glycol acetate (<i>alternative name</i> 2-Ethoxyethyl acetate)	111-15-9			✓	60,61,20/21/22	53,45
2-Ethylhexyl [[3,5-bis(1,1-dimethylethyl) 4-hydroxyphenyl] methyl] thio] acetate	80387-97-9			✓	61,43,52/53	53,45,61
N-ethyl-N-nitrosourea	759-73-9	✓				
Etoposide in combination with cisplatin and bleomycin	33419-42-0	Cat. 1				

Substance suspected or confirmed to be carcinogenic, mutagenic or toxic to reproduction	CAS No.	Carcinogen	Mutagen	Toxic to Reproduction	R Phrases (where known)	S Phrases (where known)
Extracts (petroleum), most types		✓				
Extract residues, from coal or coal tar		✓				
F						
Fast garnet GBC base (<i>alternative names</i> 4-o-tolylazo-o-toluidine, 4-amino-2',3-dimethylazobenzene, AAT, o-aminoazotoluene)	97-56-3	✓			45,43	53,45
Fluazifop-butyl (ISO) (<i>alternative name</i> butyl(RS)-2-[4-(5-trifluoromethyl-2-pyridyloxy) phenoxy] propionate)	69806-50-4			✓	61,50/53	53,45,60,61
Flumioxazin (ISO) (<i>alternative name</i> N-(7-fluoro-3,4-dihydro-3-oxo-4-prop-2-ynyl-2H-1,4-benzoxazin-6-yl)cyclohex-1-ene-1,2-dicarboxamide)	103361-09-7			✓	61,50/53	53,45,60,61
N-(7-fluoro-3,4-dihydro-3-oxo-4-prop-2-ynyl-2H-1,4-benzoxazin-6-yl)cyclohex-1-ene-1,2-dicarboxamide (<i>alternative name</i> Flumioxazin (ISO))	103361-09-7			✓	61,50/53	53,45,60,61
Fluoroethene (<i>alternative names</i> vinyl fluoride, fluoroethylene)	75-02-5	✓				
Fluoroethylene (<i>alternative names</i> fluoroethene, vinyl fluoride)	75-02-5	✓				
Flusilazole (ISO) (<i>alternative name</i> bis(4-fluorophenyl)-(methyl)-(1H-1,2,4-triazol-1-ylmethyl)-silane)	85509-19-9			✓	61,22,40,51/53	53,45,61
Foots Oil (petroleum)		✓				
Formaldehyde, (<i>alternative names</i> formalin, methanal)	50-00-0	Cat. 1			23/24/.25,34,40,43	26,36/37/39,45,51
Formalin, (<i>alternative names</i> formaldehyde, methanal)	50-00-0	Cat. 1			23/24/.25,34,40,43	26,36/37/39,45,51
Formamide	75-12-7			✓	61	53,45
Fuel oil no. 6	68553-00-4	✓				
Fuel oil, heavy, high sulphur		✓				
Fuel oil, residues-straight-run gas oils, high sulphur		✓				
Fuel oil, residual		✓				
Furan	110-00-9	✓			45,12,19,20/22,38,48/22 52/53	53,45,61

Substance suspected or confirmed to be carcinogenic, mutagenic or toxic to reproduction	CAS No.	Carcinogen	Mutagen	Toxic to Reproduction	R Phrases (where known)	S Phrases (where known)
Furniture and cabinet making		Cat. 1				
G						
Gamma radiation		Cat. 1				
Gas oils (petroleum), most types		✓				
Gases (petroleum) most types		✓				
Gasoline, coal solvent extraction, hydrocracked naphtha		✓				
Glycerol trichlorohydrin (<i>alternative names</i> allyl trichloride, 1,2,3-trichloropropane)	96-18-4	✓			20/21/22	37/39
Glycidol (<i>alternative name</i> 2,3-epoxypropan-1-ol)	556-52-5	✓		✓	45,60,21/22,23,36/37/38	53,45
H						
Hardwood dusts		Cat. 1				
HCB, (<i>alternative names</i> hexachlorobenzene, perchlorobenzene)	118-74-1	✓			45,48/25,50/53	53,45,60,61
Heliobacter pylori, infection with		Cat. 1				
Hepatitis B virus (chronic infection with)		Cat. 1				
Hepatitis C virus (chronic infection with)		Cat. 1				
1,2,3,4,6,7,8-Heptachlorodibenzodioxin	35822-46-9	✓				
1,2,3,4,6,7,8-Heptachlorodibenzofuran	67562-39-4	✓				
1,2,3,4,7,8,9-Heptachlorodibenzofuran	55673-89-7	✓				
Herbal remedies containing plants of genus Aristolochia		Cat. 1				
Hexachlorobenzene, (<i>alternative names</i> HCB, perchlorobenzene)	118-74-1	✓			45,48/25,50/53	53,45,60,61
1,2,3,4,7,8-Hexachlorodibenzodioxin	39227-28-6	✓				
1,2,3,6,7,8-Hexachlorodibenzodioxin	57653-85-7	✓				
1,2,3,7,8,9-Hexachlorodibenzodioxin	19408-74-3	✓				
1,2,3,4,7,8-Hexachlorodibenzofuran	70648-26-9	✓				
1,2,3,6,7,8-Hexachlorodibenzofuran		✓				
1,2,3,7,8,9-Hexachlorodibenzofuran	72918-21-9	✓				

Substance suspected or confirmed to be carcinogenic, mutagenic or toxic to reproduction	CAS No.	Carcinogen	Mutagen	Toxic to Reproduction	R Phrases (where known)	S Phrases (where known)
2,3,4,6,7,8-Hexachlorodibenzofuran	60851-34-5	✓				
Hexamethylphosphoramide (<i>alternative name</i> hexamethylphosphoric triamide)	680-31-9	✓	✓		45,46	53,45
Hexamethylphosphoric triamide (<i>alternative name</i> hexamethylphosphoramide)	680-31-9	✓	✓		45,46	53,45
Hot mate		✓				
Human immunodeficiency virus type 1, infection with		Cat. 1				
Human papillomavirus type 16		Cat. 1				
Human papillomavirus type 18		Cat. 1				
Human papillomavirus type 31		✓				
Human papillomavirus type 33		✓				
Human T-cell lymphotropic virus type I		Cat. 1				
Hydrazine	302-01-2	✓			45,10,23/24/25,34,43,50/53	53,45,60,61
Hydrazine, salts of		✓			45,23/24/25,43,50/53	53,45,60,61
Hydrazine bis(3-carboxy-4-hydroxybenzene sulphonate)		✓			45,22,34,43,52/53	53,45,61
Hydrazine-tri-nitromethane		✓			45,3,8,23/25,43	53,45
Hydrazobenzene	122-66-7	✓			45,22,50/53	53,45,60,61
Hydrocarbon oils, aromatic mixed (petroleum product)		✓				
Hydrocarbons C ₂₆₋₅₅ , aromatic rich (petroleum product)		✓				
(6-(4-Hydroxy-3-(2-methoxyphenylazo)-2-sulphonato-7-nephthylamino)-1,3,5-triazin-2,4-diyl)bis[(amino-1-methylethyl)-ammonium] formate	108225-03-2	✓			45,41,51/53	53,45,61
6-Hydroxy-1-(3-isopropoxypropyl)-4-methyl-2-oxo-5-[4-(phenylazo)phenylazo] -1,1-dihydro-3-pyridine carbonitrile	85136-74-9	✓				
(R)-4-hydroxy-3-(3-oxo-1-phenylbutyl)-2-benzopyrone	5543-58-8			Cat. 1	61,48/25,52/53	53,45,61
(S)-4-hydroxy-3-(3-oxo-1-phenylbutyl)-2-benzopyrone	5543-57-7			Cat. 1	61,48/25,52/53	53,45,61
4-Hydroxy-3-(3-oxo-1-phenylbutyl) coumarin (<i>alternative name</i> Warfarin)	81-81-2			Cat. 1		
3 Hydroxy-1-propane sulphonic acid (<i>alternative names</i> 1,3-propanesultone, 1,2 oxathiolane 2,2-dioxide,)	1120-71-4	✓			45,21/22	53,45

Substance suspected or confirmed to be carcinogenic, mutagenic or toxic to reproduction	CAS No.	Carcinogen	Mutagen	Toxic to Reproduction	R Phrases (where known)	S Phrases (where known)
3-Hydroxypropionic acid lactone (<i>alternative names</i> 3-Propanolide, β -propiolactone, 1,3 propiolactone)	57-57-8	✓			45,26,36/38	53,45
I						
2-Imidazoline-2-thiol (<i>alternative names</i> ethylene thiourea, imidazolidine-2-thione)	96-45-7			✓	61,22	53,45
Imidazolidine- 2-thione (<i>alternative names</i> ethylene thiourea, 2-imidazoline-2-thiol)	96-45-7			✓	61,22	53,45
4,4'-(4-iminocyclohexa-2,5-dienyllidenemethylene)dianiline hydrochloride (<i>alternative name</i> C.I. Basic Red 9)	560-61-9	✓			45	53,45
Insecticides (non-arsenical)		✓				
IQ (2-Amino-3-methylimidazo[4,5-f] quinoline)	76180-96-6	✓				
4,4'-isobutylethylidenediphenol (<i>alternative name</i> 2,2-bis(4'-hydroxyphenyl)-4-methylpentane)	6807-17-6			✓	60,36,50/53	53,45,60,61
K, L						
Kaposi's sarcoma herpes virus/human herpes virus		✓				
Lead acetate	1335-32-6			Cat. 1	61,33,40,48/22,50/53,62	53,45,60,61
Lead alkyls				Cat. 1	61,26/27/28,33,50/53	53,45,60,61
Lead azide	13424-46-9			Cat. 1	61,3,20/22,33,50/53,62	53,45,60,61
Lead chromate	7758-97-6			Cat. 1	61,33,40,50/53,62	53,45,60,61
Lead chromate molybdate sulphate red (<i>alternative name</i> C.I. Pigment Red 104)	12656-85-8			Cat. 1	61,33,40,50/53,62	53,45,60,61
Lead compounds, not specified elsewhere				Cat. 1	61,20/22,33,50/53,62	53,45,60,61
Lead di(acetate)	301-04-2			Cat. 1	61,33,48/22,50/53,62	53,45,60,61
Lead hexafluorosilicate	25808-74-6			Cat. 1	61,62,20/22,33,50/53	53,45,60,61
Lead hydrogen arsenate	7784-40-9	Cat. 1		Cat. 1	45,61,23/25,33,50/53,62	53,45,60,61
Lead (II) methanesulphonate	17570-76-2			Cat. 1	61,62,20/22,33,38,41,48/20/22,58	53,45,57,61

Substance suspected or confirmed to be carcinogenic, mutagenic or toxic to reproduction	CAS No.	Carcinogen	Mutagen	Toxic to Reproduction	R Phrases (where known)	S Phrases (where known)
Lead styphnate (<i>alternative names</i> lead 2,4,6-trinitroresorcinoxide, lead 2,4,6-trinitro-m-phenylene dioxide)	15245-44-0			Cat. 1	61,3,20/22,33,50/53,62	53,45,60,61
Lead sulphochromate yellow (<i>alternative name</i> C.I. Pigment yellow 3)	1344-37-2			Cat. 1	61,33,40,50/53,62	53,45,60,61
Lead 2,4,6-trinitroresorcinoxide (<i>alternative names</i> lead styphnate, lead 2,4,6-trinitro-m-phenylene dioxide)	15245-44-0			Cat. 1	61,3,20/22,33,50/53,62	53,45,60,61
Lead 2,4,6-trinitro-m-phenylene dioxide, (<i>alternative names</i> lead styphnate, lead 2,4,6-trinitroresorcinoxide)	15245-44-0			Cat. 1	61,3,20/22,33,50/53,62	53,45,60,61
Lubricating oils (petroleum), various		✓				
M						
MbOCA (<i>alternative names</i> 2,2'-Dichloro-4,4'-methylenedianiline, 4,4'-methylene bis(2-chloroaniline), MOCA), and its salts	101-14-4	✓			45,22,50/53	53,45,60,61
Melphalan	148-82-3	Cat. 1				
Methanal, (<i>alternative names</i> formaldehyde, formalin)	50-00-0	✓			23/24/25,34,40,43	26,36/37/39,45,51
Methoxsalen (<i>alternative name</i> 8-Methoxypsoralen) plus UV	298-81-7	Cat. 1				
Methoxyacetic acid	625-45-6			✓	60,61,22,34	53,45
2-Methoxyaniline (<i>alternative name</i> o-anisidine)	90-04-0	✓			45,23/24/25	53,45
2-(Methoxycarbonylhydrazonomethyl)quinoxaline 1,4-dioxide (<i>alternative names</i> Carbadox (INN), methyl 3-(quinoxalin-2-methylene) carbazate 1,4-dioxide)	6804-07-5	✓			45,11,22	53,45
2-Methoxyethanol (<i>alternative names</i> ethylene glycol monomethyl ether, methyl cellosolve)	109-86-4			✓	60,61,10,20/21/22	53,45
2-Methoxyethyl acetate (<i>alternative names</i> methyl glycol acetate)	110-49-6			✓	60,61,20/21/22	53,45
2-Methoxypropanol	1589-47-5			✓	61,10,37/38,41	53,45
2-Methoxypropyl acetate	70657-70-4			✓	61,10,37	53,45
5-Methoxypsoralen	484-20-8	✓				
8-Methoxypsoralen (<i>alternative name</i> Methoxsalen) plus UV	298-81-7	Cat. 1				

Substance suspected or confirmed to be carcinogenic, mutagenic or toxic to reproduction	CAS No.	Carcinogen	Mutagen	Toxic to Reproduction	R Phrases (where known)	S Phrases (where known)
N-Methylacetamide	79-16-3			✓		
Methyl acrylamidoglycolate (containing >= 0.1% acrylamide)	77402-05-2	✓	✓		45,46,34,43	53,45
Methyl acrylamidomethoxyacetate (containing >= 0.1% acrylamide)	77402-03-0	✓	✓		45,46,22,36	53,45
2-Methylaziridine (alternative name(s) propyleneimine)	75-55-8	✓			45,11,26/27/28,41,50/53	53,45,61
Methyl azoxy methyl acetate -(<i>alternative name</i> methyl ONN-azoxymethylacetate)	592-62-1	✓		✓	45,61	53,45
Methyl CCNU (<i>alternative names</i> 1-(2-Chloroethyl)-3-(4-methylcyclohexyl)-1-nitrosourea, Semustine)	13010-47-4	Cat. 1				
Methyl cellosolve (<i>alternative names</i> 2-methoxyethanol, ethylene glycol monomethyl ether)	109-86-4			✓	60,61,10,20/21/22	53,45
4,4'-methylene bis(2-chloroaniline) (<i>alternative names</i> 2,2'-dichloro-4,4'-methylenedianiline, MbOCA, MOCA), and its salts	101-14-4	✓			45,22,50/53	53,45,60,61
4,4'-Methylene dianiline (<i>alternative name</i> 4,4'-diaminodiphenylmethane)	101-77-9	✓			45,39/23/24/25,43,48/20/21/22,51/53	53,45,61
4,4'-Methylenedi-o-toluidine	838-88-0	✓			45,22,43,50/53	53,45,60,61
N-Methylformamide	123-39-7			✓	61,21	53,45
Methyl glycol acetate (<i>alternative name</i> 2- methoxyethyl acetate)	110-49-6			✓	60,61,20/21/22	53,45
Methyl methanesulfonate	66-27-3	✓				
N-methyl-N'-nitro-N-nitrosoguanidine	70-25-7	✓			45,20,36/38,51/53	53,45,61
1-Methyl-3-nitro-1-nitrosoguanidine	70-25-7	✓			45,20,36/38,51/53	53,45,61
N-Methyl-N-nitrosourea	684-93-5	✓				
Methyl-ONN-azoxymethylacetate (<i>alternative name</i> methyl azoxy methyl acetate)	592-62-1	✓		✓	45,61	53,45
Methyloxirane (<i>alternative names</i> 1,2-epoxypropane, propylene oxide)	75-56-9	✓	✓		45,46,12,20/21/22,36/37/38	53,45
4-Methyl-m-phenylenedamine (<i>alternative name</i> 2-4-toluenediamine)	95-80-7	✓			45,21,25,36,43,51/53	53,45,61
4-Methyl-m-phenylenediamine sulphate (<i>alternative names</i> toluene-2,4-diammonium sulphate, 1,3 diamino 4-methyl benzene)	65321-67-7	✓			45,21,25,36,43,51/53	53,45,61

Substance suspected or confirmed to be carcinogenic, mutagenic or toxic to reproduction	CAS No.	Carcinogen	Mutagen	Toxic to Reproduction	R Phrases (where known)	S Phrases (where known)
Methyl 3-(quinoxalin-2-methylene) carbazate 1,4-dioxide (<i>alternative names</i> Carbadox (INN), 2-(methoxycarbonylhydrazonomethyl)quinoxaline 1,4-dioxide)	6804-07-5	✓			45,11,22	53,45
Mineral oils, untreated and mildly treated		Cat. 1				
MOPP and other combined chemotherapy including alkylating agents		Cat. 1				
Mustard gas (<i>alternative name</i> β,β' -dichlorodiethyl sulphide)	505-60-2	Cat. 1			45,11,22,36/37/38	53,45
Myleran, (<i>alternative names</i> 4-butanediol dimethylsulfonate, Busulphan)	55-98-1	Cat. 1				
N						
Naphtha, solvent naphthas, petroleum		✓				
Naphthenic oils		✓				
2-Naphthylamine (<i>alternative names</i> β -naphthylamine, 2-aminonaphthalene)	91-59-8	Cat. 1			45,22,51/53	53,45,61
2-Naphthylamine, salts of (<i>alternative names</i> β -naphthylamine, 2-aminonaphthalene)		Cat. 1			45,22,51/53	53,45,61
β -Naphthylamine (<i>alternative names</i> 2- naphthylamine, 2-aminonaphthalene)	91-59-8	Cat. 1			45,22,51/53	53,45,61
β -Naphthylamine, salts of (<i>alternative names</i> 2- naphthylamine, 2-aminonaphthalene)		Cat. 1			45,22,51/53	53,45,61
Natural gas condensates (petroleum)		✓				
Neutrons		Cat. 1				
Nickel carbonyl (<i>alternative names</i> nickel tetracarbonyl, tetracarbonyl nickel)	13463-39-3			✓	61,11,26,40,50/53	53,45,60,61
Nickel compounds		Cat. 1				
Nickel dioxide	12035-36-8	Cat. 1			49,43,53	53,45,61
Nickel monoxide	1313-99-1	Cat. 1			49,43,53	53,45,61
Nickel subsulphide (<i>alternative name</i> trinickel disulphide)	12035-72-2	Cat. 1			49,43,51/53	53,45,61
Nickel sulphide	16812-54-7	Cat. 1			49,43,50/53	53,45,60,61

Substance suspected or confirmed to be carcinogenic, mutagenic or toxic to reproduction	CAS No.	Carcinogen	Mutagen	Toxic to Reproduction	R Phrases (where known)	S Phrases (where known)
Nickel tetracarbonyl (<i>alternative names</i> nickel carbonyl, tetracarbonyl nickel)	13463-39-3			✓	61,11,26,40,50/53	53,45,60,61
5-Nitroacenaphthene	602-87-9	✓			45	53,45
2-Nitroanisole	91-23-6	✓			45,22	53,45
4-Nitrobiphenyl (<i>alternative name</i> 4-nitrodiphenyl)	92-93-3	✓			45,51/53	53,45,61
4-Nitrodiphenyl (<i>alternative name</i> 4-nitrobiphenyl)	92-93-3	✓			45,51/53	53,45,61
Nitrofen (ISO), (<i>alternative name</i> 2,4-dichlorophenyl 4-nitrophenyl ether)	1836-75-5	✓		✓	45,61,22,50/53	53,45,60,61
Nitrogen mustard	51-75-2	✓				
2-Nitronaphthalene	581-89-5	✓			45,51/53	53,45,61
2-Nitropropane	79-46-9	✓			45,10,20/22	53,45
N-nitrosodiethylamine	55-18-5	✓				
N-nitroso dimethylamine (<i>alternative name</i> dimethylnitrosamine)	62-75-9	✓			45,25,26,48/25,51/53	53,45,61
N-Nitrosodipropylamine	621-64-7	✓			45,22,51/53	53,45,61
2,2'-(Nitrosoimino) bis ethanol	1116-54-7	✓			45	53,45
O						
Octachlorodibenzodioxin (OCDD)	3268-87-9	✓				
Octachlorodibenzofuran (OCDF)	39001-02-0	✓				
Oestrogen therapy, postmenopausal		Cat. 1				
Oestrogens, nonsteroidal (not necessarily all compounds in the group)		Cat. 1				
Oestrogens, steroidal (not necessarily all compounds in the group)		Cat. 1				
Opisthorchis viverrini, infection with		Cat. 1				
Oral contraceptives, combined		Cat. 1				
Oral contraceptives, sequential		Cat. 1				
1,2 Oxathiolane 2,2-dioxide (<i>alternative names</i> 1,3-propanesultone, 3 hydroxy-1-propane sulphonic acid)	1120-71-4	✓			45,21/22	53,45
Oxirane (<i>alternative names</i> ethylene oxide, epoxyethane)	75-21-8	Cat. 1	✓		45,46,12,23,36/37/38	53,45

Substance suspected or confirmed to be carcinogenic, mutagenic or toxic to reproduction	CAS No.	Carcinogen	Mutagen	Toxic to Reproduction	R Phrases (where known)	S Phrases (where known)
Oxitol (<i>alternative names</i> ethylene glycol monoethyl ether, cellosolve, 2-ethoxyethanol)	110-80-5			✓	60,61,10,20/21/22	53,45
Oxybis (chloromethane) (<i>alternative names</i> BCME, bis(chloromethyl) ether)	542-88-1	Cat. 1			45,10,22,24,26	53,45
P						
Painter, occupational exposure as a		Cat. 1				
Paraffin waxes, from brown coal high temp. tar		✓				
1,2,3,7,8-Pentachlorodibenzodioxin	40321-76-4	✓				
1,2,3,7,8-Pentachlorodibenzofuran	57117-41-6	✓				
2,3,4,7,8-Pentachlorodibenzofuran	57117-31-4	✓				
Perchlorobenzene, (<i>alternative names</i> HCB, hexachlorobenzene)	118-74-1	✓			45,48/25,50/53	53,45,60,61
Petrolatum	8009-03-8	✓				
Petroleum; crude oil		✓				
Petroleum gases, liquefied (various)		✓				
Phenacetin	62-44-2	✓				
Phenanthrene distillation residues		✓				
Phenols, C ₉ to C ₁₁		✓				
4-Phenylazoaniline (<i>alternative name</i> 4-aminoazobenzene)	60-09-3	✓			45,50/53	53,45,60,61
Phenyl glycidyl ether (<i>alternative names</i> 2,3-epoxypropyl phenyl ether, 1,2-epoxy-3-phenoxypropane)	122-60-1	✓			45,20,37/38,43,52/53	53,45
Phenylhydrazine	100-63-0	✓			45,23/24/25,36/37/38,43 48/23/24/25,50	53,45,61
Phenylhydrazinium chloride	59-88-1	✓			45,23/24/25,36/37/38,43 48/23/24/25,50	53,45,61
Phenylhydrazinium hydrochloride	27140-08-5	✓			45,23/24/25,36/37/38,43 48/23/24/25,50	53,45,61
Phenylhydrazinium sulphate	52033-74-6	✓			45,23/24/25,36/37/38,43 48/23/24/25,50	53,45,61

Substance suspected or confirmed to be carcinogenic, mutagenic or toxic to reproduction	CAS No.	Carcinogen	Mutagen	Toxic to Reproduction	R Phrases (where known)	S Phrases (where known)
Phenylloxirane (<i>alternative names</i> Styrene oxide, (epoxyethyl) benzene)	96-09-3	✓			45,21,36	53,45
Phosphorus-32, as phosphate		Cat. 1				
Pitches		✓				
Plutonium-239 and its decay products as aerosols.		Cat. 1				
Polychlorinated biphenyls	1336-36-3	✓				
Potassium bromate	7758-01-2	✓			45,9,25	53,45
Potassium chromate	7789-00-6	✓	✓		49,46,36/37/38,43,50/53	53,45,60,61
Potassium dichromate	7778-50-9	✓	✓		49,46,21,25,26,37/38,41,43,50/53	53,45,60,61
Procarbazine hydrochloride	366-70-1	✓				
1,3-Propanesultone (<i>alternative names</i> 1,2 oxathiolane 2,2-dioxide, 3 hydroxy-1-propane sulphonic acid)	1120-71-4	✓			45,21/22	53,45
3-Propanolide (<i>alternative names</i> 1,3 propiolactone, β -propiolactone, 3-hydroxypropionic acid lactone)	57-57-8	✓			45,26,36/38	53,45
Prop-2-enamide (<i>alternative name</i> acrylamide)	79-06-1	✓	✓		45,46,24/25,48/23/24/25	53,45
β Propiolactone (<i>alternative names</i> 3-Propanolide, 1,3-propiolactone, 3-hydroxypropionic acid lactone)	57-57-8	✓			45,26,36/38	53,45
1,3 Propiolactone (<i>alternative names</i> 3-Propanolide, β -propiolactone, 3-hydroxypropionic acid lactone)	57-57-8	✓			45,26,36/38	53,45
Propyleneimine (<i>alternative name</i> 2-methylaziridine)	75-55-8	✓			45,11,26/27/28,41,50/53	53,45,61
Propylene oxide (<i>alternative names</i> 1,2-epoxypropane, methyloxirane)	75-56-9	✓	✓		45,46,12,20/21/22,36/37/38	53,45
Pyridine, alkyl derivatives, crude tar bases		✓				
R						
Radioiodines, short lived isotopes, including Iodine-131 from reactor incidents and weapons detonation, exposure during childhood.		Cat. 1				
Radionuclides, α -particle emitting, internally deposited		Cat. 1				
Radionuclides, β -particle emitting, internally deposited		Cat. 1				

Substance suspected or confirmed to be carcinogenic, mutagenic or toxic to reproduction	CAS No.	Carcinogen	Mutagen	Toxic to Reproduction	R Phrases (where known)	S Phrases (where known)
Radium 224 and its decay products		Cat. 1				
Radium 226 and its decay products		Cat. 1				
Radium 228 and its decay products		Cat. 1				
Radon 222 and its decay products		Cat. 1				
Raffinates (petroleum)		✓				
Refractory ceramic fibres (some)		✓			49,38	53,45
Residual oils (petroleum)		✓				
Residues (petroleum), most types		✓				
Rubber manufacturing and processing that gives rise to rubber process dust and rubber fume		✓				
S						
Safrole (<i>alternative name(s)</i> 5-Allyl-1, 3-benzodioxole)	94-59-7	✓			45,22,40	53,45
Salted fish (Chinese style)		Cat. 1				
Schistosoma haematobium, infection with		Cat. 1				
Semustine (<i>alternative names</i> 1-(2-chloroethyl)-3-(4-methylcyclohexyl)-1-nitrosourea, methyl CCNU)	13010-47-4	Cat. 1				
Shale oils	68308-34-9	Cat. 1				
Silica, crystalline, inhaled in the form of quartz or cristobalite from occupational sources	14808-60-7	Cat. 1				
Slack wax (petroleum)	64742-61-6	✓			45	53,45
Sodium chromate	7775-11-3	✓	✓			
Sodium dichromate	10588-01-9	Cat. 1	✓		49,46,8,21,25,26,37/38, 41,43,50/53	53,45,60,61
Sodium dichromate dihydrate	7789-12-0	Cat. 1	✓		49,46,21,25,26,37/38, 41,43,50/53	53,45,60,61
Solar radiation		Cat. 1				
Soots		✓				
Stoddard solvent	8052-41-3	✓				
Strontium chromate	7789-06-2	Cat. 1			45,22,50/53	53,45,60,61

Substance suspected or confirmed to be carcinogenic, mutagenic or toxic to reproduction	CAS No.	Carcinogen	Mutagen	Toxic to Reproduction	R Phrases (where known)	S Phrases (where known)
Styrene oxide (<i>alternative names</i> (epoxyethyl) benzene, phenyloxirane, styrene 7,8, oxide)	96-09-3	✓			45,21,36	53,45
Sulfallate ISO (<i>alternative names</i> 2-chloroallyl diethyldithiocarbamate)	95-06-7	✓			45,22,50/53	53,45,60,61
T						
Tail gas (petroleum)		✓				
Talc containing asbestiform fibres		Cat. 1				
Tamoxifen (however, there is conclusive evidence that this reduces the risk of contralateral breast cancer)	10540-29-1	Cat. 1				
Tar acids		✓				
Tar bases		✓				
Tar, coal most types		Cat. 1				
Teniposide	29767-20-2	✓				
1,4,5,8-tetraamino-anthraquinone (<i>alternative name</i> CI Disperse Blue 1)	2475-45-8	✓			45,38,41,43	53,45
Tetracarbonyl nickel (<i>alternative names</i> nickel carbonyl, nickel tetracarbonyl)	13463-39-3			✓	61,11,26,40,50/53	53,45,60,61
2,3,7,8-tetrachlorodibenzofuran (TCDF)	51207-31-9	✓				
2,3,7,8-Tetrachlorodibenzo-para-dioxin (TCDD)	1746-01-6	Cat. 1				
Tetrachloroethylene	127-18-4	✓				
(+/-)Tetrahydrofurfuryl (R)-2-[4-(6-chloroquinoxalin-2-yloxy)phenoxy] propionate	119738-06-6			✓	61,22,48/22,62,68,50/53	53,45,60,61
1,2,3,6-Tetrahydro-N-(1,1,2,2,-tetrachloroethylthio) phthalimide (<i>alternative name</i> Captafol (ISO))	2425-06-1	✓			45,43,50/53	53,45,60,61
Tetrasodium 3,3'-[[1,1'-biphenyl]-4,4'-diylbis(azo)]bis[5-amino-4-hydroxynaphthalene-2,7-disulphonate (<i>alternative name</i> C.I. Direct blue 6)	2602-46-2	✓			45,63	53,45
TGIC (<i>alternative names</i> triglycidyl isocyanurate, 1,3,5,-tris(oxiranylmethyl)-2,3,5-triazine-2,4,6(1H,2H,5H)-trione)	2451-62-9		✓		46,23/25,41,43,48/22,52/53	53,45,61
Thioacetamide	62-55-5	✓			45,22,36/38,52/53	53,45,61

Substance suspected or confirmed to be carcinogenic, mutagenic or toxic to reproduction	CAS No.	Carcinogen	Mutagen	Toxic to Reproduction	R Phrases (where known)	S Phrases (where known)
Thiotepa /	52-24-4	Cat. 1				
Thorium 232 and its decay products, administered intravenously as colloidal suspension of Th232 dioxide		Cat. 1				
Tobacco products, smokeless		Cat. 1				
Tobacco smoke		Cat. 1				
2,4-Toluenediamine (<i>alternative name</i> 4-methyl-m-phenylenediamine)	95-80-7	✓			45,21,25,36,43,51/53	53,45,61
Toluene-2,4-diammonium sulphate (<i>alternative names</i> 4-methyl-m-phenylenediamine sulphate, 1,3 diamino 4-methyl benzene)	65321-67-7	✓			45,21,25,36,43,51/53	53,45,61
o-Tolidine (<i>alternative name</i> 3,3'-dimethylbenzidine)	119-93-7	✓			45,22,51/53	53,45,61
o-Tolidine, salts of (<i>alternative name</i> 3,3'-dimethylbenzidine)		✓			45,22,51/53	53,45,61
o-Toluidine (<i>alternative name</i> 2-aminotoluene)	95-53-4	✓			45,23/25,36,50	53,45,61
o-Toluidine, salts of		✓			45,23/25,36,50	53,45,61
o-Toluidine based azodyes		✓				
4-o-Tolylazo-o-toluidine (<i>alternative names</i> 4-amino-2',3'-dimethylazobenzene, fast garnet GBC base, AAT, o-aminoazotoluene)	97-56-3	✓			45,43	53,45
Treosulfan	299-75-2	Cat. 1				
Trichloroethylene (<i>alternative names</i> Trike, Trilene, ethylene trichloride)	79-01-6	✓			45,36/38,52/53,67	53,45,61
1,2,3-Trichloropropane (<i>alternative names</i> allyl trichloride, glycerol trichlorohydrin)	96-18-4	✓			20/21/22	37/39
α,α,α-trichlorotoluene (<i>alternative name</i> benzotrichloride)	98-07-7	✓			45,22,23,37/38,41,45	53,45
Tridemorph (ISO) (<i>alternative name</i> 2,6-dimethyl-4-tridecylmorpholine)	24602-86-6			✓	61,20/22,38,50/53	53,45,60,61
Triglycidyl isocyanurate (<i>alternative names</i> 1,3,5-tris(oxiranylmethyl)-2,3,5-triazine-2,4,6(1H,2H,5H)-trione; TGIC)	2451-62-9		✓		46,23/25,41,43,48/22,52/53	53,45,61
Trike (<i>alternative names</i> trichloroethylene, Trilene, ethylene trichloride)	79-01-6	✓			45,36/38,52/53,67	53,45,61
Trilead bis(orthophosphate)	7446-27-7			Cat. 1	61,33,48/22,50/53,62	53,45,60,61

Substance suspected or confirmed to be carcinogenic, mutagenic or toxic to reproduction	CAS No.	Carcinogen	Mutagen	Toxic to Reproduction	R Phrases (where known)	S Phrases (where known)
Trilene (<i>alternative names</i> trichloroethylene, Trike, ethylene trichloride)	79-01-6	✓			45,36/38,52/53,67	53,45,61
Trinickel disulphide (<i>alternative name</i> nickel subsulphide)	12035-72-2	Cat. 1			49,43,51/53	53,45,61
Tris(2,3-dibromopropyl) phosphate	126-72-2	✓				
Trisodium-[4'-(8-acetylamino-3,6-disulphonato-2-naphthylazo)-4''-(6-benzoylamino-3-sulphonato-2-naphthylazo) biphenyl-1,3',3'',1'''-tetraolato-O,O',O'',O'''] copper (II)		✓			45	53,45
1,3,5,-Tris(oxiranylmethyl)-2,3- epoxypropyl]-1,3,5-triazine-2,4,6(1H,3H,5H)-trione	59653-74-6		✓		46,22,23,41,43,48/22	53,45
1,3,5,-Tris[(2S and 2R)oxiranylmethyl)-2,3,5-triazine-2,4,6(1H,2H,5H)-trione (<i>alternative names</i> triglycidyl isocyanurate; TGIC)						
U						
Ultraviolet radiation A		✓				
Ultraviolet radiation B		✓				
Ultraviolet radiation C		✓				
Urethane (INN) (<i>alternative name</i> ethyl carbamate)	51-79-6	✓			45	53,45
Used engine oils		✓				
V, W						
Vinclozolin (ISO) (<i>alternative name</i> N-3,5-dichlorophenyl-5-vinyl-1,3-oxazolidine-2,4-dione)	50471-44-8			✓	60,61,40,43,51/53	53,45,61
Vinyl bromide (<i>alternative names</i> bromoethylene, bromoethene)	593-60-2	✓			45,12	53,45
Vinyl fluoride (<i>alternative names</i> fluoroethene, fluoroethylene)	75-02-5	✓				
Vinyl chloride (<i>alternative names</i> chloroethylene, chloroethene)	75-01-4	Cat. 1			45,12	53,45
Warfarin (<i>alternative name</i> 4-hydroxy-3-(3-oxo-1-phenylbutyl) coumarin)	81-81-2			Cat. 1	61,48/25,52/53	53,45,61
Wood dust		Cat. 1				

Substance suspected or confirmed to be carcinogenic, mutagenic or toxic to reproduction	CAS No.	Carcinogen	Mutagen	Toxic to Reproduction	R Phrases (where known)	S Phrases (where known)
X, Z						
Xenylamine (<i>alternative names</i> 4-aminodiphenyl, biphenyl-4-ylamine, 4-aminobiphenyl) and its salts	92-67-1	Cat. 1			45,22	53,45
X-radiation		Cat. 1				
Zinc chromates (including zinc potassium chromate)		Cat. 1			45,22,43,50/53	53,45,60,61

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