

PROPOSITION 65 SAFE HARBOR LEVELS:

No Significant Risk Levels for
Carcinogens and Maximum Allowable
Dose Levels for Chemicals Causing
Reproductive Toxicity

September 2011



**Reproductive and Cancer Hazard Assessment Branch
Office of Environmental Health Hazard Assessment
California Environmental Protection Agency**

Proposition 65 Safe Harbor Levels Development

The Office of Environmental Health Hazard Assessment (OEHHA) of the California Environmental Protection Agency is the lead agency for the implementation of Proposition 65*. In that role, OEHHA has developed Proposition 65 safe harbor levels – no significant risk levels (NSRLs) for carcinogens and maximum allowable dose levels (MADLs) for chemicals that cause reproductive toxicity. The NSRL is the daily intake level for a chemical calculated to result in one excess case of cancer in an exposed population of 100,000, assuming lifetime exposure to the chemical at the level in question. The MADL is the level at which a chemical listed for reproductive toxicity would have no observable effect assuming exposure at 1,000 times that level. NSRLs and MADLs assist interested parties in determining whether warnings are required for exposures to listed chemicals, and whether discharges of listed chemicals to sources of drinking water are prohibited. NSRLs and MADLs are promulgated as regulations in Title 27, California Code of Regulations,[†] sections 25705, 25709, and 25805.

Safe harbor levels may be based on risk assessments conducted outside OEHHA, as provided for in Sections 25705(b), 25705(c), and 25805. In some cases, this can expedite safe harbor development. However, the process of review and consideration of existing risk assessments can be a lengthy one, and will depend on the complexity of the scientific information underlying the assessment, as well as on available resources.

This document provides the status of the development and adoption of safe harbor levels for all chemicals on the Proposition 65 list. Part A reports NSRLs adopted in regulation for carcinogens. Part B reports MADLs adopted in regulation for chemicals that cause reproductive toxicity. Parts C and D give priority levels for development of NSRLs and MADLs, respectively. Parts C and D also include safe harbor levels that have been proposed, but not adopted, in regulation.

OEHHA assigns priority levels based on the following factors: availability and quality of scientific data for dose-response assessments, potential for exposure, resources available to perform the assessment, needs expressed by interested parties, and input from the public and the Attorney General's office. Priority assignments change as assessments are completed or the basis for the priority changes. Interested parties are invited to recommend changes in priority levels. In general, OEHHA gives priority to chemicals that are newly added to the Proposition 65 list and aims to propose safe harbor levels for them within one year of their addition to the list.

This status report will be updated on a regular basis.

* The Safe Drinking Water and Toxic Enforcement Act of 1986, codified at Health and Safety Code Section 25249.5.

[†] All further section references are to Title 27 of the California Code of Regulations unless otherwise indicated.

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A. No Significant Risk Levels (NSRLs) Adopted in Regulation for Carcinogens

The table below lists NSRLs for Proposition 65 carcinogens in regulation (Sections 25705 and 25709), in units of micrograms per day ($\mu\text{g}/\text{day}$). These levels provide “safe harbor” for persons subject to the Act, and do not preclude the use of alternative levels that can be demonstrated by their users as being scientifically valid.

A three-tiered procedure for development of NSRLs is currently in place. NSRLs may be based on:

- a *de novo* dose response assessment conducted or reviewed by OEHHA (Section 25705(b)),
- an assessment conducted by another state or federal agency (Section 25705(c)), or
- an expedited process conducted by OEHHA (Section 25705(d)).

The last column of the table below indicates which of these processes was used to develop the NSRL for each chemical. NSRLs represent the daily intake level of a chemical calculated to result in a cancer risk of one excess case of cancer in 100,000 individuals exposed over a lifetime.

NSRLs for chemicals in bold have been adopted since the last report. If a chemical is removed from the Proposition 65 list, the regulatory process to remove the safe harbor level from regulation will be initiated.

Carcinogen	Level ($\mu\text{g}/\text{day}$)	Section
A-alpha-C (2-Amino-9H-pyrido[2,3-b]indole)	2	25705(d)
Acetaldehyde	90 (inhalation)	25705(c)
Acetamide	10	25705(d)
2-Acetylaminofluorene	0.2	25705(d)
Acrylamide	0.2	25705(c)
Acrylonitrile	0.7	25705(b)
Actinomycin D	0.00008	25705(d)
AF-2; [2-(2-furyl)-3(5-nitro-2-furyl)acrylamide]	3	25705(d)
Aldrin	0.04	25705(b)
2-Aminoanthraquinone	20	25705(d)
<i>o</i> -Aminoazotoluene	0.2	25705(d)
4-Aminobiphenyl	0.03	25705(d)
3-Amino-9-ethylcarbazole hydrochloride	9	25705(d)
1-Amino-2-methylantraquinone	5	25705(d)
2-Amino-5-(5-nitro-2-furyl)-1,3,4-thiadiazole	0.04	25705(d)
Amitrole	0.7	25705(d)
Aniline	100	25705(c)
<i>o</i> -Anisidine	5	25705(d)
<i>o</i> -Anisidine hydrochloride	7	25705(d)
Aramite	20	25705(d)
Arsenic (inorganic)	0.06 (inhalation) 10 (except inhalation)	25705(b) 25709

Carcinogen	Level (µg/day)	Section
Asbestos [NSRL for fibers ≥ 5 micrometers (µm) long and 0.3 µm wide, with a length/width ratio ≥ 3:1 as measured by phase contrast microscopy.]	100 fibers/day (inhalation)	25705(b)
Auramine	0.8	25705(d)
Azaserine	0.06	25705(d)
Azathioprine	0.4	25705(d)
Azobenzene	6	25705(c)
Benz[a]anthracene	0.033 (oral)	25705(b)
Benzene	6.4 (oral) 13 (inhalation)	25705(b) 25705(b)
Benzidine	0.001	25705(b)
Benzo[b]fluoranthene	0.096 (oral)	25705(b)
Benzo[j]fluoranthene	0.11 (oral)	25705(b)
Benzofuran	1.1	25705(b)
Benzo[a]pyrene	0.06	25705(c)
Benzyl chloride	4	25705(c)
Benzyl violet 4B	30	25705(d)
Beryllium	0.1	25709
Beryllium oxide	0.1	25705(c)
Beryllium sulfate	0.0002	25705(c)
Bis(2-chloroethyl)ether	0.3	25705(b)
Bis(chloromethyl)ether	0.02	25705(b)
Bromodichloromethane	5	25705(c)
Bromoform	64	25705(b)
1,3-Butadiene	0.4	25705(c)
Butylated hydroxyanisole	4000	25705(b)
beta-Butyrolactone	0.7	25705(d)
Cadmium	0.05 (inhalation)	25705(b)
Captafol	5	25705(d)
Captan	300	25705(d)
Carbazole	4.1	25705(d)
Carbon tetrachloride	5	25705(b)
N-Carboxymethyl-N-nitrosourea	0.70	25705(b)
Chlorambucil	0.002	25705(d)
Chlordane	0.5	25705(c)
Chlordecone (Kepone)	0.04	25705(d)
Chlorendic acid	8	25705(d)
Chlorinated paraffins [Avg. chain length C12; approx. 60% chlorine by weight]	8	25705(d)
<i>p</i> -Chloroaniline	1.5	25705(b)
<i>p</i> -Chloroaniline hydrochloride	1.9	25705(b)
Chloroethane (Ethyl chloride)	150	25705(b)
Chloroform	20 (oral) 40 (inhalation)	25705(c) 25705(c)
Chloromethyl methyl ether (technical grade)	0.3	25705(d)
3-Chloro-2-methylpropene	5	25705(d)
4-Chloro-ortho-phenylenediamine	40	25705(d)
Chlorothalonil	200	25705(d)

Carcinogen	Level (µg/day)	Section
<i>p</i> -Chloro-ortho-toluidine	3	25705(d)
<i>p</i> -Chloro- <i>o</i> -toluidine, hydrochloride	3.3	25705(d)
Chlorozotocin	0.003	25705(d)
Chromium (hexavalent compounds)	0.001 (inhalation)	25705(b)
Chrysene	0.35 (oral)	25705(b)
C.I. Basic Red 9 monohydrochloride	3	25705(d)
C.I. Direct Blue 218	50	25705(b)
Cinnamyl anthranilate	200	25705(d)
Coke oven emissions	0.3	25705(c)
<i>p</i> -Cresidine	5	25705(d)
Cupferron	3	25705(d)
Cyclophosphamide (anhydrous)	1	25705(d)
Cyclophosphamide (hydrated)	1	25705(d)
D&C Red No. 9	100	25705(d)
Dacarbazine	0.01	25705(d)
Daminozide	40	25705(d)
Dantron (Chrysazin; 1,8-Dihydroxyanthraquinone)	9	25705(d)
DDT, DDE, DDD (in combination)	2	25705(b)
DDVP (Dichlorvos)	2	25705(c)
2,4-Diaminoanisole	30	25705(d)
2,4-Diaminoanisole sulfate	50	25705(d)
4,4'-Diaminodiphenyl ether (4,4'-Oxydianiline)	5	25705(d)
2,4-Diaminotoluene	0.2	25705(d)
Dibenz[a,h]anthracene	0.2	25705(d)
7H-Dibenzo[c,g]carbazole	0.0030 (oral)	25705(b)
Dibenzo[a,h]pyrene	0.0054 (oral)	25705(b)
Dibenzo[a,i]pyrene	0.0050 (oral)	25705(b)
1,2-Dibromo-3-chloropropane	0.1	25705(b)
<i>p</i> -Dichlorobenzene	20	25705(b)
3,3'-Dichlorobenzidine	0.6	25705(b)
1,1-Dichloroethane	100	25705(d)
1,2-Dichloroethane (Ethylene dichloride)	10	25705(b)
Dichloromethane (Methylene chloride)	200 (inhalation)	25705(b)
	50	25705(c)
1,2-Dichloropropane	9.7	25705(b)
Dieldrin	0.04	25705(b)
Di(2-ethylhexyl)phthalate (DEHP)	310	25705(b)
Diethylstilbesterol	0.002	25705(d)
Diglycidyl resorcinol ether (DGRE)	0.4	25705(d)
Dihydrosafrole	20	25705(d)
3,3'-Dimethoxybenzidine (<i>o</i> -Dianisidine)	0.15	25705(b)
3,3'-Dimethoxybenzidine dihydrochloride	0.19	25705(b)
4-Dimethylaminoazobenzene	0.2	25705(d)
trans-2-[(Dimethylamino)methylimino]-5-[2-(5-nitro-2-furyl)vinyl]-1,3,4-oxadiazole	2	25705(d)
7,12-Dimethylbenz(a)anthracene	0.003	25705(d)
3,3'-Dimethylbenzidine (<i>o</i> -Tolidine)	0.044	25705(b)

Carcinogen	Level (µg/day)	Section
3,3'-Dimethylbenzidine dihydrochloride	0.059	25705(b)
Dimethylcarbamoyl chloride	0.05	25705(d)
1,2-Dimethylhydrazine	0.001	25705(d)
Dimethylvinylchloride	20	25705(d)
2,4-Dinitrotoluene	2	25705(c)
1,4-Dioxane	30	25705(b)
Direct Black 38 (technical grade)	0.09	25705(d)
Direct Blue 6 (technical grade)	0.09	25705(d)
Direct Brown 95 (technical grade)	0.1	25705(d)
Disperse Blue 1	200	25705(d)
Epichlorohydrin	9	25705(b)
Estradiol 17b	0.02	25705(d)
Ethylbenzene	41 (oral) 54 (inhalation)	25705(b)
Ethyl-4,4'-dichlorobenzilate (Chlorobenzilate)	7	25705(d)
Ethylene dibromide	0.2 (oral) 3 (inhalation)	25705(b) 25705(b)
Ethyleneimine	0.01	25705(d)
Ethylene oxide	2	25705(b)
Ethylene thiourea	20	25705(d)
Folpet	200	25705(c)
Formaldehyde (gas)	40	25705(c)
2-(2-Formylhydrazino)-4-(5-nitro-2-furyl)thiazole	0.3	25705(d)
Furmecyclox	20	25705(c)
Glu-P-1 (2-Amino-6-methyldipyrdo[1,2-a:3',2'-d]imidazole)	0.1	25705(d)
Glu-P-2 (2-Aminodipyrdo[1,2-a:3',2'-d]-imidazole)	0.5	25705(d)
Glycidol	0.54	25705(b)
Gyromitrin (Acetaldehyde methylformylhydrazone)	0.07	25705(d)
HC Blue 1	10	25705(d)
Heptachlor	0.2	25705(c)
Heptachlor epoxide	0.08	25705(c)
Hexachlorobenzene	0.4	25705(b)
Hexachlorocyclohexane		
alpha isomer	0.3	25705(c)
beta isomer	0.5	25705(c)
gamma isomer	0.6	25705(c)
technical grade	0.2	25705(b)
Hexachlorodibenzodioxin	0.0002	25705(b)
Hexachloroethane	20	25705(d)
Hydrazine	0.04	25705(c)
Hydrazine sulfate	0.2	25705(c)
Hydrazobenzene (1,2-Diphenylhydrazine)	0.8	25705(d)
IQ (2-Amino-3-methylimidazo[4,5-f]quinoline)	0.5	25705(d)
Isobutyl nitrite	7.4	25705(d)
Lasiocarpine	0.09	25705(d)
Lead	15 (oral)	25705(b)
Lead acetate	23 (oral)	25705(b)

Carcinogen	Level (µg/day)	Section
Lead phosphate	58 (oral)	25705(b)
Lead subacetate	41 (oral)	25705(b)
Me-A-alpha-C (2-Amino-3-methyl-9H-pyrido[2,3-b]indole)	0.6	25705(d)
MeIQ (2-amino-3,4-dimethylimidazo-[4,5-f]quinoline)	0.46	25705(d)
MeIQx (2-Amino-3,8-dimethylimidazo[4,5-f]quinoxaline)	0.41	25705(d)
Melphalan	0.005	25705(d)
2-Methylaziridine (Propyleneimine)	0.028	25705(b)
Methyl carbamate	160	25705(d)
3-Methylcholanthrene	0.03	25705(d)
5-Methylchrysene	0.0084 (oral)	25705(b)
4,4'-Methylene bis(2-chloroaniline)	0.5	25705(d)
4,4'-Methylene bis(N,N-dimethyl)benzeneamine	20	25705(c)
4,4'-Methylene bis(2-methylaniline)	0.8	25705(d)
4,4'-Methylenedianiline	0.4	25705(d)
4,4'-Methylenedianiline dihydrochloride	0.6	25705(d)
Methylhydrazine	0.058 (oral) 0.090 (inhalation)	25705(b) 25705(b)
Methylhydrazine sulfate	0.18	25705(b)
Methyl methanesulfonate	7	25705(d)
2-Methyl-1-nitroanthraquinone (of uncertain purity)	0.2	25705(d)
N-Methyl-N'-nitro-N-nitrosoguanidine	0.08	25705(d)
Methylthiouracil	2	25705(d)
Michler's ketone	0.8	25705(d)
Mirex	0.04	25705(d)
Mitomycin C	0.00009	25705(d)
Monocrotaline	0.07	25705(d)
5-(Morpholinomethyl)-3-[(5-nitrofurfurylidene)-amino] -2-oxazolidinone	0.18	25705(b)
MX (3-chloro-4-(dichloromethyl)-5-hydroxy-2(5H)-furanone)	0.11	25705(b)
Nalidixic acid	28	25705(d)
Naphthalene	5.8	25705(b)
2-Naphthylamine	0.4	25705(d)
Nickel refinery dust	0.8	25705(c)
Nickel subsulfide	0.4	25705(c)
Nitrilotriacetic acid	100	25705(d)
Nitrilotriacetic acid, trisodium salt monohydrate	70	25705(d)
5-Nitroacenaphthene	6	25705(d)
Nitrofen (technical grade)	9	25705(d)
Nitrofurazone	0.5	25705(d)
1-[(5-Nitrofurfurylidene)-amino]-2-imidazolidinone	0.4	25705(d)
N-[4-(5-Nitro-2-furyl)-2-thiazolyl]acetamide	0.5	25705(d)
Nitromethane	39	25705(b)
N-Nitrosodi-n-butylamine	0.06	25705(b)
N-Nitrosodiethanolamine	0.3	25705(c)
N-Nitrosodiethylamine	0.02	25705(b)
N-Nitrosodimethylamine	0.04	25705(b)
p-Nitrosodiphenylamine	30	25705(d)

Carcinogen	Level (µg/day)	Section
N-Nitrosodiphenylamine	80	25705(b)
N-Nitrosodi-n-propylamine	0.1	25705(b)
N-Nitroso-N-ethylurea	0.03	25705(b)
4-(N-Nitrosomethylamino)-1-(3-pyridyl)-1-butanone	0.014	25705(d)
N-Nitrosomethylethylamine	0.03	25705(c)
N-Nitroso-N-methylurea	0.006	25705(b)
N-Nitroso-N-methylurethane	0.006	25705(d)
N-Nitrosomorpholine	0.1	25705(d)
N-Nitrosornicotine	0.5	25705(d)
N-Nitrosopiperidine	0.07	25705(d)
N-Nitrosopyrrolidine	0.3	25705(c)
Pentachlorophenol	40	25705(c)
Phenacetin	300	25705(d)
Phenazopyridine	4	25705(d)
Phenazopyridine hydrochloride	5	25705(d)
Phenesterin	0.005	25705(d)
Phenobarbital	2	25705(d)
Phenoxybenzamine	0.2	25705(d)
Phenoxybenzamine hydrochloride	0.3	25705(d)
o-Phenylenediamine	26	25705(d)
o-Phenylenediamine dihydrochloride	44	25705(d)
Phenyl glycidyl ether	5.0	25705(b)
Phenylhydrazine	1.0	25705(b)
Phenylhydrazine hydrochloride	1.4	25705(b)
o-Phenylphenate, sodium	200	25705(d)
Polybrominated biphenyls	0.02	25705(b)
Polychlorinated biphenyls	0.09	25705(c)
Polygeenan	1200	25705(b)
Ponceau MX	200	25705(d)
Ponceau 3R	40	25705(d)
Potassium bromate	1	25705(d)
Procarbazine	0.05	25705(d)
Procarbazine hydrochloride	0.06	25705(d)
1,3-Propane sultone	0.3	25705(d)
beta-Propiolactone	0.05	25705(d)
Propylthiouracil	0.7	25705(d)
Reserpine	0.06	25705(d)
Safrole	3	25705(d)
Sterigmatocystin	0.02	25705(d)
Streptozotocin	0.006	25705(d)
Styrene oxide	4	25705(d)
Sulfallate	4	25705(d)
2,3,7,8-Tetrachlorodibenzo-p-dioxin	0.000005	25705(b)
1,1,2,2-Tetrachloroethane	3	25705(d)
Tetrachloroethylene	14	25705(c)
Tetranitromethane	0.059	25705(b)

Carcinogen	Level (µg/day)	Section
Thioacetamide	0.1	25705(d)
4,4'-Thiodianiline	0.05	25705(d)
Thiourea	10	25705(d)
Toluene diisocyanate	20	25705(d)
ortho-Toluidine	4	25705(d)
ortho-Toluidine hydrochloride	5	25705(d)
Toxaphene	0.6	25705(b)
Trichloroethylene	50 (oral) 80 (inhalation)	25705(b) 25705(b)
2,4,6-Trichlorophenol	10	25705(b)
Trimethyl phosphate	24	25705(d)
2,4,6-Trinitrotoluene	8.2	25705(b)
Tris(1-aziridinyl)phosphine sulfide (Thiotepa)	0.06	25705(d)
Tris(2,3-dibromopropyl)phosphate	0.3	25705(d)
Trp-P-1 (Tryptophan-P-1)	0.03	25705(d)
Trp-P-2 (Tryptophan-P-2)	0.2	25705(d)
Urethane (Ethyl carbamate)	0.7	25705(b)
Vinyl chloride	3	25705(b)
Vinyl trichloride (1,1,2-Trichloroethane)	10	25705(d)
2,6-Xylidine	110	25705(b)

B. Maximum Allowable Dose Levels (MADLs) Adopted in Regulation for Chemicals Causing Reproductive Toxicity

The following table is a compilation of MADLs in regulation (Section 25805) for Proposition 65 chemicals that cause reproductive toxicity. These levels represent the no observable effect level (NOEL) for the chemical, divided by 1,000. NOELs are set in accordance with procedures specified in Section 25803. MADLs are reported in units of micrograms per day ($\mu\text{g}/\text{day}$).

Chemical Listed as Causing Reproductive Toxicity	Level ($\mu\text{g}/\text{day}$) ^a
Acrylamide	140
Benzene	24 (oral) 49 (inhalation)
Cadmium	4.1 (oral)
Chromium (hexavalent compounds)	8.2 (oral)
2,4-D butyric acid (2,4-dichlorophenoxybutyric acid)	910
1,2-Dibromo-3-chloropropane (DBCP)	3.1 (oral) 4.3 (inhalation)
Di- <i>n</i> -butyl phthalate (DBP)	8.7
Di(2-ethylhexyl)phthalate (DEHP) adults	4200 (intravenous)
infant boys, age 29 days to 24 months ^b	600 (intravenous)
neonatal infant boys, age 0 to 28 days ^b	210 (intravenous)
Di(2-ethylhexyl)phthalate (DEHP) adults	410 (oral)
infant boys, age 29 days to 24 months ^b	58 (oral)
neonatal infant boys, age 0 to 28 days ^b	20 (oral)
Di- <i>n</i> -hexyl phthalate (DnHP)	2200 (oral)
Di-isodecyl phthalate (DIDP)	2200
<i>m</i> -Dinitrobenzene	38
Disodium cyanodithiomidocarbonate [32% pesticidal formulation]	56 (oral) 170 (oral)
Ethyl dipropylthiocarbamate	700 (oral and inhalation) 6700 (dermal)
Ethylene glycol monoethyl ether (EGEE)	750 (oral) 960 (inhalation)
Ethylene glycol monoethyl ether acetate (EGEEA)	1100 (oral) 1400 (inhalation)
Ethylene glycol monomethyl ether	63 (oral)
Ethylene glycol monomethyl ether acetate	98 (oral)
Ethylene oxide	20
Hydramethylnon	120 (oral)
Lead	0.5
Linuron	460
Methyl bromide as a structural fumigant	810 (inhalation)
N-Methylpyrrolidone	3200 (inhalation) 17000 (dermal)
Potassium dimethyldithiocarbamate	720

Chemical Listed as Causing Reproductive Toxicity	Level (µg/day) ^a
Quizalofop-ethyl	590
Sodium dimethyldithiocarbamate [40% pesticidal formulation]	23 (oral) 58 (oral)
Thiophanate-methyl	600 (oral)
Toluene	7000 ^c

^a Where a source or product results in exposures by multiple routes, the total exposure must be considered. For example, the MADL for benzene is exceeded when the absorbed dose exceeds 24 µg/day. If only inhalation and oral exposure occurs, the benzene MADL is exceeded when:

$$(\text{oral dose} \div 24 \text{ } \mu\text{g/day}) + (\text{inhalation dose} \div 49 \text{ } \mu\text{g/day}) > 1.0$$

^b Levels for male children and adolescents were calculated by application of the default bodyweights specified in Section 25703(a)(8) to the procedure specified in Sections 25801 and 25803.

^c Level represents absorbed dose (rounded from 6,525 µg/day). Since 100% of ingested toluene is absorbed, oral dose is equivalent to administered dose. It is assumed that roughly 50% of the dose administered by the inhalation route is absorbed. Therefore the MADL for inhaled toluene is 13,000 µg/day (rounded from 13,050 µg/day), corresponding to an absorbed dose of 6,525 µg/day.

C. Priority List for the Development of NSRLs for Carcinogens

OEHHA has developed the following priority list, which classifies into four priorities carcinogens for which NSRLs have not been adopted. OEHHA assigns priority levels based on the availability and quality of scientific data for dose-response assessments, potential for exposure, resources available to perform the assessment, need expressed by interested parties and input from the public and Attorney General's office. OEHHA anticipates proposing NSRLs for many of the chemicals in the first priority group within the next year, and anticipates proposing NSRLs within the next two to five years for many of the chemicals in the second priority group. It is unlikely that NSRLs for third and fourth priority chemicals will be released within the next five years.

Priority assignments change as assessments are completed or the basis for the priority changes. Any interested party may submit recommendations to OEHHA for revising the priority assignment for any of the chemicals listed, preferably with supporting rationale for the change in priority. In general, OEHHA will give priority to chemicals that are newly added to the Proposition 65 list and propose safe harbor levels for them within one year of their addition to the list.

If a level is currently being proposed for adoption in regulation, it is provided below in the first priority group. Chemicals in bold font have been added to the Proposition 65 list or changed in priority status since the last report.

First Priority for NSRL Development		
Androstenedione	Diclofop-methyl	MON 4660 (dichloroacetyl-1-oxa-4-azaspiro(4,5)-decane)
Bromate	Epoxiconazole	MON 13900 (furilazole)
Bromochloroacetic acid	Furan	3-Monochloropropane-1,2-diol
Bromoethane	Hexachlorobutadiene	Ochratoxin A
Carbaryl	2,4-Hexadienal (89% trans, trans isomer; 11% cis, trans isomer)	Oryzalin
Cumene	Imazalil	Propylene glycol mono-t-butyl ether
Chlorothalonil (Proposed: 27 µg/day)	(Proposed: 11 µg/day)	Pymetrozine
Cyclopenta[cd]pyrene	4-Methylimidazole (Proposed: 16 µg/day)	Pyridine
Dibromoacetic acid	N-Methylolacrylamide	Resmethrin
Dibromoacetonitrile		1,2,3-Trichloropropane
1,3-Dichloro-2-propanol		

Second Priority for NSRL Development		
Alachlor	1-Chloro-4-nitrobenzene	3,3'-Dichlorobenzidine dihydrochloride
<i>p</i> -Aminoazobenzene	Chloroprene	1,4-Dichloro-2-butene
Aniline hydrochloride	5-Chloro- <i>o</i> -toluidine and its strong acid salts	1,3-Dichloropropene
Anthraquinone	C.I. Acid Red 114	Diesel engine exhaust
Antimony oxide	C.I. Direct Blue 15	Diethyl sulfate
Benzotrichloride	Cobalt sulfate heptahydrate	Dimethyl sulfate
2,2-Bis(bromomethyl)-1,3-propanediol	D&C Orange No. 17	1,1-Dimethylhydrazine (UDMH)
Catechol	Diaminotoluene (mixed)	Indium phosphide
Ceramic fibers (airborne particles of respirable size)	Dichloroacetic acid	Isoprene
		Methyleugenol

Methyl iodide
1-Naphthylamine
Nitrapyrin
Nitrobenzene
2-Nitropropane
o-Nitrotoluene
o-Phenylphenol

Progesterone
Propoxur
Propylene oxide
Quinoline and its strong acid salts
Spirodiclofen
Tetrafluoroethylene

**S,S,S-Tributyl phospho-
trithioate**
Tris(2-chloroethyl)phosphate
Vanadium pentoxide
(orthorhombic crystalline form)
Vinyl bromide
4-Vinylcyclohexene

Third Priority for NSRL Development

Acetochlor	Dibenz[a,j]acridine	Gasoline engine exhaust (condensates/extracts)
Acifluorfen sodium	Dibenzo[a,e]pyrene	Gemfibrozil
Aflatoxins	Dibenzo[a,l]pyrene	Glasswool fibers (airborne particles of respirable size)
1-Amino-2,4- dibromoanthraquinone	2,3-Dibromo-1-propanol	Glycidaldehyde
Areca nut	3,3'-Dichloro-4,4'-diaminodiphenyl ether	Griseofulvin
Azacitidine	Dienestrol	Hexamethylphosphoramide
Benthiavalcarb-isopropyl	Diepoxybutane	1-Hydroxyanthraquinone
Benzidine-based dyes	1,2-Diethylhydrazine	Indeno[1,2,3-cd]pyrene
Benzo[k]fluoranthene	Diisopropyl sulfate	Iprodione
Betel quid without tobacco	3,3'-Dimethoxybenzidine-based dyes metabolized to 3,3'-dimethoxybenzidine	Iprovalicarb
N,N-Bis(2-chloroethyl)-2- naphthylamine	3,3'-Dimethylbenzidine-based dyes metabolized to 3,3'-dimethylbenzidine	Isoxaflutole
Bischloroethyl nitrosourea (BCNU) (Carmustine)	1,6-Dinitropyrene	Lactofen
Bis(2-chloro-1-methylethyl)ether, technical grade	1,8-Dinitropyrene	Malonaldehyde, sodium salt
1,4-Butanediol	2,6-Dinitrotoluene	Mancozeb
dimethanesulfonate (Busulfan)	2,4-/2,6-Dinitrotoluene mixture	Maneb
Cacodylic acid	Diphenylhydantoin (Phenytoin)	Medroxyprogesterone acetate
Carbon black (airborne, unbound particles of respirable size)	Diphenylhydantoin (Phenytoin), sodium salt	Mepanipyrim
Chloramphenicol	Di-n-propyl isocinchomeronate (MGK Repellent 326)	Merphalan
Chlordimeform	Diuron	Mestranol
1-(2-Chloroethyl)-3-cyclohexyl-1- nitrosourea (CCNU)	Doxorubicin hydrochloride (adriamycin)	Metam potassium
1-(2-Chloroethyl)-3-(4-methyl- cyclohexyl)-1-nitrosourea	Estragole	Metham sodium
Chlorotrianisene	Estrogens, steroidal	Methylmercury compounds
Ciclosporin (Cyclosporin A; Cyclosporine)	Estrone	Metiram
Cidofovir	Estropipate	Metronidazole
C.I. Solvent Yellow 14	Ethinylestradiol	Mustard Gas
Cisplatin	Ethoprop	Nafenopin
Clofibrate	Ethyl acrylate	Nickel and nickel compounds
Cobalt metal powder	Fenoxycarb	Nickel carbonyl
Cobalt [II] oxide	Fumonisin B ₁	Niridazole
Cobalt sulfate	Furazolidone	o-Nitroanisole
Daunomycin	Fusarin C	4-Nitrobiphenyl
N,N'-Diacetylbenzidine	Gallium arsenide	6-Nitrochrysene
Diazoaminobenzene	Ganciclovir	2-Nitrofluorene
Dibenz[a,h]acridine		1-Nitropyrene
		4-Nitropyrene
		Nitrogen mustard (Mechlorethamine)
		Nitrogen mustard hydrochloride (Mechlorethamine HCl)
		N-Nitrosomethylvinylamine

N-Nitrososarcosine
 Norethisterone (Norethindrone)
 Oxadiazon
 Oxazepam
 Oxythioquinox (Chinomethionat)
 Oxymetholone
 Panfuran S
 PhiP
 Pirimicarb
 Polychlorinated dibenzo-*p*-dioxins
 Polychlorinated dibenzofurans
 Primidone
 Procymidone
 Pronamide
 Propachlor
 Propargite
 Radionuclides

Selenium sulfide
 Silica, crystalline (airborne particles of respirable size)
 Spironolactone
 Stanazolol
 Strong inorganic acid mists containing sulfuric acid
 Sulfasalazine (salicylazosulfapyridine)
 Tamoxifen and its salts
 Terrazole
 Testosterone and its esters
 p-a,a,a-Tetrachlorotoluene
 Thiodicarb
 Thiouracil
 Thorium dioxide

Titanium dioxide (airborne, unbound particles of respirable size)
 Treosulfan
 Trichlormethine (Trimustine hydrochloride)
 2,4,5-Trimethylaniline and its strong acid salts
 Triphenyltin hydroxide
 Trypan blue (commercial grade)
 Uracil mustard
 Vinclozolin
 4-Vinyl-1-cyclohexene diepoxide
 Vinyl fluoride
 Wood dust
 Zileuton

Fourth Priority for NSRL Development

Alcoholic beverages
 2-Aminofluorene
 4-Amino-2-nitrophenol
 Amsacrine
 Analgesic mixtures containing phenacetin
 Aristolochic acid
 Betel quid with tobacco
 Bitumens, extracts of steam-refined
 Bracken fern
 Caffeic acid
 Carbon-black extracts
 Certain combined chemotherapy for lymphomas
 Citrus Red No. 2
 Conjugated estrogens
 Creosotes
 Cycasin
 Cytembena
 D&C Red No. 8
 D&C Red No. 19
 3,7-Dinitrofluoranthene

3,9-Dinitrofluoranthene
 Erionite
Ethanol in alcoholic beverages
 Ethyl methanesulfonate
 Herbal remedies containing plant species of the genus *Aristolochia*
 Iron dextran complex
Leather dust
 Lynestrenol
 Marijuana Smoke
 8-Methoxypsoralen with ultraviolet A therapy
 5-Methoxypsoralen with ultraviolet A therapy
 Methylazoxymethanol
 Methylazoxymethanol acetate
 Nitrogen mustard N-oxide
 Nitrogen mustard N-oxide hydrochloride
 3-(N-Nitrosomethylamino)propionitrile
 Norethynodrel

Oil Orange SS
 Oral contraceptives, combined
 Oral contraceptives, sequential
 Palygorskite fibers
 Phenolphthalein
 Residual (heavy) fuel oils
 Riddelliine
Salted fish, Chinese-style
 Shale-oils
 Soots, tars, and mineral oils
 Talc containing asbestiform fibers
 Tobacco, oral use of smokeless products
 Tobacco smoke
 Toxins derived from *Fusarium moniliforme* (*Fusarium verticillioides*)
 Unleaded gasoline (wholly vaporized)
 Zalcitabine
 Zidovudine (AZT)

D. Priority List for the Development of MADLs for Chemicals Causing Reproductive Toxicity

OEHHA has developed the following priority list, which divides into three priorities chemicals causing reproductive toxicity for which MADLs have not been adopted. OEHHA assigns priority levels based on the availability and quality of scientific data for dose-response assessments, potential for exposure, resources available to perform the assessment, need expressed by interested parties, and input from the public and the Attorney General's office. OEHHA anticipates proposing MADLs for many of the chemicals in the first priority group within the next year, and for second priority chemicals within the next two to five years. It is unlikely that MADLs for chemicals in the third priority group will be released within the next five years.

Priority assignments change as assessments are completed or the basis for the priority changes. Any interested party may submit recommendations to OEHHA on revising the priority assignment for any of the chemicals listed, preferably with supporting rationale for the change in priority. In general, OEHHA will give priority to chemicals that are newly added to the Proposition 65 list and propose safe harbor levels for them within one year of their addition to the list.

If a level is currently being proposed for adoption in regulation, it is provided below in the first priority group. Chemicals in bold font have been added to the Proposition 65 list or changed in priority status since the last report.

First Priority for MADL Development

Amitraz	Cycloate	Nitrobenzene
Avermectin B1 (Proposed: 4.4 µg/day)	Dichloroacetic acid	Nitrous oxide
1-Bromopropane	Diglycidyl ether	p,p'-Oxybis(benzenesulfonyl hydrazide)
Bromoxynil octanoate	N, N-Dimethylacetamide	Phenyl glycidyl ether
1,3-Butadiene	2-Ethylhexanoic acid	Phenylphosphine
Butyl benzyl phthalate (BBP)	Ethyl-tert-butyl ether (EBTE)	Sulfur dioxide
N-Butyl glycidyl ether	Hexafluoroacetone	Tert-amyl methyl ether (TAME)
Carbaryl	Metham sodium	1,3,5-Triglycidyl-s-triazinetrione
Chloroform	Methyl n-butyl ketone	Vinclozolin
2-Chloropropionic acid	Methyl isocyanate	Vinyl cyclohexene dioxide
Chlorsulfuron	α-Methyl styrene	4-Vinylcyclohexene
	Myclobutanil	

Second Priority for MADL Development

Arsenic (inorganic oxides)	Fluvalinate	Propargite
Bromacil lithium salt	Mercury and mercury compounds	Resmethrin
Bromoxynil	Methazole	Sodium fluoroacetate
2-Bromopropane	Methyl mercury	Terbacil
Carbon disulfide	Metiram	2,3,7,8-Tetrachlorodibenzo-para-dioxin (TCDD)
Cocaine	Nabam	Triadimefon
Dichlorophene	Nicotine	Tributyltin methacrylate
Diclofop methyl	Nitrapyrin	Triforine
Ethylene thiourea	Oxadiazon	Triphenyl tin hydroxide
Fenoxaprop ethyl	Oxydemeton methyl	
Fluazifop butyl	Oxythioquinox (Chinomethionat)	

Third Priority for MADL Development

Acetazolamide	Conjugated estrogens	Etretinate
Acetohydroxamic acid	Cyanazine	Filgrastim
Actinomycin D	Cycloheximide	Flunisolide
All-trans retinoic acid	Cyclophosphamide (anhydrous)	Fluorouracil
Alprazolam	Cyclophosphamide (hydrated)	Fluoxymesterone
Altretamine	Cyhexatin	Flurazepam hydrochloride
Amantadine hydrochloride	Cytarabine	Flurbiprofen
Amikacin sulfate	Dacarbazine	Flutamide
Aminoglutethimide	Danazol	Fluticasone propionate
Aminoglycosides	Daunorubicin hydrochloride	Ganciclovir
Aminopterin	<i>o,p'</i> -DDT	Ganciclovir sodium
Amiodarone hydrochloride	<i>p,p'</i> -DDT	Gemfibrozil
Amoxapine	Demeclocycline hydrochloride (internal use)	Goserelin acetate
Anabolic steroids	Diazepam	Halazepam
Angiotensin converting enzyme (ACE) inhibitors	Diazoxide	Halobetasol propionate
Anisindione	Dichlophenamide	Haloperidol
Aspirin	1,1-Dichloro-2,2-bis(p- chlorophenyl)ethylene (DDE)	Halothane
Atenolol	Dicumarol	Heptachlor
Auranofin	Diethylstilbestrol (DES)	Hexachlorobenzene
Azathioprine	Diflunisal	Hexamethylphosphoramide
Barbiturates	Dihydroergotamine mesylate	Histrelin acetate
Beclomethasone dipropionate	Diltiazem hydrochloride	Hydroxyurea
Benomyl	<i>o</i> -Dinitrobenzene	Idarubicin hydrochloride
Benzphetamine hydrochloride	<i>p</i> -Dinitrobenzene	Ifosfamide
Benzodiazepines	2,4-Dinitrotoluene	Iodine-131
Bischloroethyl nitrosourea (BCNU) (Carmustine)	2,6-Dinitrotoluene	Isotretinoin
Butabarbital sodium	Dinitrotoluene (technical grade)	Leuprolide acetate
1,4-Butanediol dimethanesulfonate (Busulfan)	Dinocap	Levodopa
Carbamazepine	Dinoseb	Levonorgestrel implants
Carbon monoxide	Diphenylhydantoin (Phenytoin)	Lithium carbonate
Carboplatin	Doxorubicin hydrochloride (adriamycin)	Lithium citrate
Chenodiol	Doxycycline (internal use)	Lorazepam
Chlorambucil	Doxycycline calcium (internal use)	Lovastatin
Chlorcyclizine hydrochloride	Doxycycline hyclate (internal use)	Mebendazole
Chlordecone (Kepone)	Doxycycline monohydrate (internal use)	Medroxyprogesterone acetate
Chlordiazepoxide	Endrin	Megestrol acetate
Chlordiazepoxide hydrochloride	Environmental tobacco smoke (ETS)	Melphalan
1-(2-Chloroethyl)-3-cyclohexyl-1- nitrosourea (CCNU) (Lomustine)	Epichlorohydrin	Menotropins
Cidofovir	Ergotamine tartrate	Meprobamate
Cladribine	Estropipate	Mercaptopurine
Clarithromycin	Ethionamide	Methacycline hydrochloride
Clobetasol propionate	Ethyl alcohol in alcoholic beverages	Methimazole
Clomiphene citrate	Ethylene dibromide	Methotrexate
Clorazepate dipotassium	Etodolac	Methotrexate sodium
Codeine phosphate	Etoposide	Methyl chloride
Colchicine		Methyltestosterone
		Midazolam hydrochloride
		Minocycline hydrochloride (internal use)
		Misoprostol

Mitoxantrone hydrochloride	Paramethadione	Sulindac
Molinate	Penicillamine	Tamoxifen citrate
Nafarelin acetate	Pentobarbital sodium	Temazepam
Neomycin sulfate (internal use)	Pentostatin	Teniposide
Netilmicin sulfate	Phenacemide	Testosterone cypionate
Nickel carbonyl	Phenprocoumon	Testosterone enanthate
Nifedipine	Pimozide	Tetracycline (internal use)
Nimodipine	Pipobroman	Tetracyclines (internal use)
Nitrofurantoin	Plicamycin	Tetracycline hydrochloride (internal use)
Nitrogen mustard (Mechlorethamine)	Polybrominated biphenyls	Thalidomide
Nitrogen mustard hydrochloride (Mechlorethamine hydrochloride)	Polychlorinated biphenyls	Thioguanine
Norethisterone (Norethindrone)	Pravastatin sodium	Tobacco smoke (primary)
Norethisterone acetate (Norethindrone acetate)	Prednisolone sodium phosphate	Tobramycin sulfate
Norethisterone (Norethindrone)/Ethinyl estradiol	Procarbazine hydrochloride	Triazolam
Norethisterone (Norethindrone)/Mestranol	Propylthiouracil	Trientine hydrochloride
Norgestrel	Pyrimethamine	Trilostane
Oxazepam	Quazepam	Trimethadione
Oxymetholone	Retinol/retinyl esters, when in daily dosages in excess of 10,000 IU, or 3,000 retinol equivalents.	Trimetrexate glucuronate
Oxytetracycline (internal use)	Ribavirin	Uracil mustard
Oxytetracycline hydrochloride (internal use)	Rifampin	Urethane
Paclitaxel	Secobarbital sodium	Urofollitropin
	Sermorelin acetate	Valproate (Valproic acid)
	Streptomycin sulfate	Vinblastine sulfate
	Streptozocin (streptozotocin)	Vincristine sulfate
	Sulfasalazine (salicylazosulfapyridine)	Warfarin
		Zileuton