

**Agency for Toxic Substances and Disease Registry**  
**MINIMAL RISK LEVELS (MRLs)**  
 December 2024

*MRLs in draft Toxicological Profiles are provisional.  
 See bottom of table for more information.*

Name	Route	Dura- tion	MRL	Total Factors*	Endpoint	Status	Cover Date	CAS Number
ACENAPHTHENE	Oral	Int.	0.6 mg/kg/day	300	Hepatic	Final	08/95	83-32-9
ACETONE	Inh.	Acute	8 ppm	30	Neurol.	Final	06/22	67-64-1
	Oral	Int.	0.6 mg/kg/day	100	Hemato.			
ACROLEIN	Inh.	Acute	0.003 ppm	100	Resp.	Draft	05/24	107-02-8
		Int.	0.0004 ppm	30	Resp.			
		Chr.	0.0004 ppm	30	Resp.			
	Oral	Int.	0.002 mg/kg/day	100	Gastro.			
ACRYLAMIDE	Oral	Acute	0.01 mg/kg/day	30	Reprod.	Final	12/12	79-06-1
		Int.	0.001 mg/kg/day	30	Neurol.			
		Chr.	0.001 mg/kg/day	30	Neurol.			
ACRYLONITRILE	Inh.	Int.	0.9 ppb	30	Resp.	Draft	08/23	107-13-1
		Oral	Acute	0.09 mg/kg/day	100			
	Oral	Int.	0.02 mg/kg/day	100	Gastro.			
		Chr.	0.09 µg/kg/day	1000	Gastro.			
ALDRIN	Oral	Acute	2 ug/kg/day	1000	Develop.	Final	06/22	309-00-2
		Chr.	0.04 ug/kg/day	1000	Hepatic			
ALUMINUM	Oral	Int.	1 mg/kg/day	30	Neurol.	Final	09/08	7429-90-5
		Chr.	1 mg/kg/day	90	Neurol.			
AMMONIA	Inh.	Acute	1.7 ppm	30	Resp.	Final	09/04	7664-41-7
		Chr.	0.1 ppm	30	Resp.			
ANTHRACENE	Oral	Int.	10 mg/kg/day	100	Hepatic	Final	08/95	120-12-7

ANTIMONY	Inh.	Acute	0.001 mg/m3	30	Resp.	Final	10/19	7440-36-0
		Int.	0.001 mg/m3	30	Resp.			
		Chr.	0.0003 mg/m3	30	Resp.			
	Oral	Acute	1 mg/kg/day	100	Hepatic			
Int.		0.0006 mg/kg/day	100	Metab.				
ARSENIC	Oral	Acute	0.005 mg/kg/day	10	Gastro.	Final	08/07	7440-38-2
		Chr.	0.0003 mg/kg/day	3	Dermal			
ATRAZINE	Oral	Acute	0.01 mg/kg/day	100	Body Wt.	Final	09/03	1912-24-9
		Int.	0.003 mg/kg/day	300	Reprod.			
BARIUM, SOLUBLE SALTS	Oral	Int.	0.2 mg/kg/day	300	Renal	Final	08/07	7440-39-3
		Chr.	0.2 mg/kg/day	300	Renal			
BENZENE	Inh.	Acute	0.009 ppm	300	Immuno.	Draft	10/24	71-43-2
		Int.	0.007 ppm	300	Immuno.			
		Chr.	0.002 ppm	100	Immuno.			
	Oral	Acute	0.0009 mg/kg/day	100	Hemato.			
		Int.	0.0009 mg/kg/day	100	Hemato.			
		Chr.	0.0003 mg/kg/day	3	Hemato.			
BERYLLIUM	Inh.	Chr.	1 ng/m3	30	Immuno.	Final	09/23	7440-41-7
BIS (2-CHLOROETHYL) ETHER (BCEE)	Inh.	Int.	0.02 ppm	1000	Body Wt.	Final	10/17	111-44-4
BIS (CHLOROMETHYL) ETHER (BCME)	Inh.	Int.	0.0003 ppm	100	Resp.	Final	11/17	542-88-1
BORON	Inh.	Acute	0.3 mg/m3	3	Resp.	Final	11/10	7440-42-8
		Oral	Acute	0.2 mg/kg/day	100			
		Int.	0.2 mg/kg/day	66	Develop.			
BROMODICHLOROMETHANE	Oral	Acute	0.07 mg/kg/day	100	Develop.	Final	02/20	75-27-4
		Chr.	0.008 mg/kg/day	100	Hepatic			
BROMOFORM	Oral	Acute	0.7 mg/kg/day	100	Hepatic	Final	08/05	75-25-2
		Int.	0.2 mg/kg/day	100	Hepatic			
		Chr.	0.02 mg/kg/day	3000	Hepatic			
BROMOMETHANE	Inh.	Int.	0.02 ppm	90	Neurol.	Final	03/20	74-83-9
		Chr.	0.001 ppm	90	Resp.			

1-BROMOPROPANE	Inh.	Acute	1 ppm	30	Neurol.	Final	08/17	106-94-5
		Int.	0.1 ppm	30	Neurol.			
		Chr.	0.02 ppm	30	Neurol.			
	Oral	Acute	0.2 mg/kg/day	100	Neurol.			
2-BUTANONE	Inh.	Acute	1 ppm	100	Neurol.	Final	10/20	78-93-3
2-BUTOXYETHANOL (ETHYLENE GLYCOL MONOBUTYL ETHER)	Inh.	Acute	6 ppm	9	Hemato.	Final	08/98	111-76-2
		Int.	3 ppm	9	Hemato.			
		Chr.	0.2 ppm	3	Hemato.			
	Oral	Acute	0.4 mg/kg/day	90	Hemato.			
		Int.	0.07 mg/kg/day	1000	Hepatic			
CADMIUM	Inh.	Acute	0.00003 mg/m3	300	Resp.	Final	09/12	7440-43-9
		Chr.	0.00001 mg/m3	9	Renal			
	Oral	Int.	0.0005 mg/kg/day	100	Musculo.			
		Chr.	0.0001 mg/kg/day	3	Renal			
CARBON DISULFIDE	Inh.	Acute	0.2 ppm	90	Hepatic	Draft	10/24	75-15-0
		Chr.	0.1 ppm	10	Neurol.			
	Oral	Acute	0.03 mg/kg/day	1000	Develop.			
CARBON TETRACHLORIDE	Inh.	Int.	0.03 ppm	30	Hepatic	Final	08/05	56-23-5
		Chr.	0.03 ppm	30	Hepatic			
	Oral	Acute	0.02 mg/kg/day	300	Hepatic			
		Int.	0.007 mg/kg/day	100	Hepatic			
CESIUM	Rad.	Acute	4 mSv	3	Develop.	Final	04/04	7440-46-2
		Chr.	1 mSv/yr	3	Other			
CHLORDANE	Inh.	Int.	0.0002 mg/m3	100	Hepatic	Final	02/18	12789-03-6
		Chr.	0.00002 mg/m3	1000	Hepatic			
	Oral	Acute	0.001 mg/kg/day	1000	Develop.			
		Int.	0.0006 mg/kg/day	100	Hepatic			
		Chr.	0.0006 mg/kg/day	100	Hepatic			
CHLORDECONE	Oral	Acute	0.01 mg/kg/day	100	Neurol.	Final	10/20	143-50-0
		Int.	3 ug/kg/day	100	Neurol.,Reprod.			
		Chr.	0.9 ug/kg/day	100	Renal			
CHLORFENVINPHOS	Oral	Acute	0.002 mg/kg/day	1000	Neurol.	Final	09/97	470-90-6
		Int.	0.002 mg/kg/day	1000	Immuno.			
		Chr.	0.0007 mg/kg/day	1000	Neurol.			

CHLORINE	Inh.	Acute	0.06 ppm	3	Resp.	Final	11/10	7782-50-5
		Int.	0.002 ppm	90	Resp.			
		Chr.	0.00005 ppm	30	Resp.			
CHLORINE DIOXIDE	Inh.	Int.	0.001 ppm	300	Resp.	Final	09/04	10049-04-4
CHLORITE	Oral	Int.	0.1 mg/kg/day	30	Develop.	Final	09/04	7758-19-2
CHLOROBENZENE	Oral	Int.	0.07 mg/kg/day	100	Hepatic	Final	10/20	108-90-7
CHLOROETHANE	Inh.	Acute	13 ppm	30	Develop.	Draft	01/24	75-00-3
		Int.	13 ppm	300	Reprod.			
CHLOROFORM	Inh.	Acute	0.001 ppm	30	Resp.	Final	10/24	67-66-3
		Int.	0.0008 ppm	90	Resp.			
		Chr.	0.0004 ppm	300	Resp.			
	Oral	Acute	0.3 mg/kg/day	100	Hepatic			
		Int.	0.1 mg/kg/day	100	Hepatic			
		Chr.	0.02 mg/kg/day	100	Hepatic			
CHLOROMETHANE	Inh.	Acute	0.5 ppm	90	Neurol.	Final	09/23	74-87-3
		Int.	0.3 ppm	30	Neurol.			
		Chr.	0.03 ppm	300	Neurol.			
2-CHLOROPHENOL	Oral	Int.	0.08 mg/kg/day	100	Reprod.	Final	06/22	95-57-8
4-CHLOROPHENOL	Oral	Int.	0.9 mg/kg/day	100	Reprod.	Final	06/22	106-48-9
CHLORPYRIFOS	Oral	Acute	0.003 mg/kg/day	10	Neurol.	Final	09/97	2921-88-2
		Int.	0.003 mg/kg/day	10	Neurol.			
		Chr.	0.001 mg/kg/day	100	Neurol.			
CHROMIUM(III) SOLUBLE PARTICULATES	Inh.	Int.	0.0001 mg/m3	300	Resp.	Final	09/12	16065-83-1
CHROMIUM(III) INSOL. PARTICULATES	Inh.	Int.	0.005 mg/m3	90	Resp.	Final	09/12	16065-83-1
CHROMIUM(VI)	Oral	Int.	0.005 mg/kg/day	100	Hemato.	Final	09/12	18540-29-9
		Chr.	0.0009 mg/kg/day	100	Gastro.			
CHROMIUM(VI) , AEROSOL MISTS	Inh.	Int.	0.000005 mg/m3	100	Resp.	Final	09/12	18540-29-9
		Chr.	0.000005 mg/m3	100	Resp.			
CHROMIUM(VI) , PARTICULATES	Inh.	Int.	0.0003 mg/m3	30	Resp.	Final	09/12	18540-29-9

COBALT	Inh.	Acute	0.0003 mg/m <sup>3</sup>	30	Resp.	Final	10/24	7440-48-8
		Chr.	0.0001 mg/m <sup>3</sup>	10	Resp.			
	Oral	Acute	0.03 mg/kg/day	30	Hemato.			
		Int.	0.02 mg/kg/day	100	Hemato.			
COPPER	Oral	Acute	0.02 mg/kg/day	3	Gastro.	Final	10/24	7440-50-8
		Int.	0.02 mg/kg/day	3	Gastro.			
CRESOLS	Oral	Int.	0.1 mg/kg/day	100	Resp.	Final	09/08	1319-77-3
		Chr.	0.1 mg/kg/day	1000	Resp.			
CYANIDE, SODIUM	Oral	Int.	0.04 mg/kg/day	100	Endocr.	Draft	10/24	143-33-9
CYHALOTHRIN	Oral	Acute	0.01 mg/kg/day	100	Gastro.	Final	09/03	68085-85-8
		Int.	0.01 mg/kg/day	100	Gastro.			
CYPERMETHRIN	Oral	Acute	0.02 mg/kg/day	1000	Neurol.	Final	09/03	52315-07-8
DDD, P,P'-	Oral	Acute	0.5 ug/kg/day	1000	Develop.	Final	04/22	72-54-8
		Int.	0.5 ug/kg/day	100	Hepatic			
		Chr.	0.5 ug/kg/day	100	Hepatic			
DDE, P,P'-	Oral	Acute	0.5 ug/kg/day	1000	Develop.	Final	04/22	72-55-9
		Int.	0.5 ug/kg/day	100	Hepatic			
		Chr.	0.5 ug/kg/day	100	Hepatic			
DDT, P,P'-	Oral	Acute	0.5 ug/kg/day	1000	Develop.	Final	04/22	50-29-3
		Int.	0.5 ug/kg/day	100	Hepatic			
		Chr.	0.5 ug/kg/day	100	Hepatic			
DEET	Oral	Int.	1 mg/kg/day	100	Develop.	Final	08/17	134-62-3
DIAZINON	Inh.	Int.	0.01 mg/m <sup>3</sup>	30	Neurol.	Final	09/08	333-41-5
		Oral	Acute	0.006 mg/kg/day	100			
	Oral	Int.	0.002 mg/kg/day	100	Neurol.			
		Chr.	0.0007 mg/kg/day	100	Neurol.			
DIBROMOCHLOROMETHANE	Oral	Acute	0.1 mg/kg/day	300	Hepatic	Final	08/05	124-48-1
		Chr.	0.09 mg/kg/day	300	Hepatic			
1,2-DIBROMO-3-CHLOROPROPANE	Inh.	Int.	0.0002 ppm	100	Reprod.	Final	04/18	96-12-8
		Oral	Int.	0.002 mg/kg/day	1000			
DI-N-BUTYL PHTHALATE	Oral	Acute	0.5 mg/kg/day	100	Develop.	Final	09/01	84-74-2

1,2-DICHLOROBENZENE	Oral	Acute	0.7 mg/kg/day	100	Hepatic	Final	08/06	95-50-1
		Int.	0.6 mg/kg/day	100	Hepatic			
		Chr.	0.3 mg/kg/day	100	Renal			
1,3-DICHLOROBENZENE	Oral	Acute	0.4 mg/kg/day	100	Hepatic	Final	08/06	541-73-1
		Int.	0.02 mg/kg/day	100	Endocr.			
1,4-DICHLOROBENZENE	Inh.	Acute	2 ppm	10	Resp.	Final	08/06	106-46-7
		Int.	0.2 ppm	100	Hepatic			
		Chr.	0.01 ppm	30	Resp.			
	Oral	Int.	0.07 mg/kg/day	100	Hepatic			
		Chr.	0.07 mg/kg/day	100	Hepatic			
1,2-DICHLOROETHANE	Inh.	Acute	0.3 ppm	30	Resp.	Draft	01/22	107-06-2
		Oral	Int.	0.2 mg/kg/day	300			
1,1-DICHLOROETHENE	Inh.	Int.	1 ppb	30	Resp.	Final	04/22	75-35-4
		Chr.	1 ppb	30	Resp.			
	Oral	Chr.	0.05 mg/kg/day	100	Hepatic			
1,2-DICHLOROETHENE, TRANS-	Inh.	Acute	3 ppm	100	Ocular	Draft	08/23	156-60-5
		Oral	Int.	0.2 mg/kg/day	100			
2,4-DICHLOROPHENOL	Oral	Int.	0.02 mg/kg/day	100	Immuno.	Final	06/22	120-83-2
2,4-DICHLOROPHENOXYACETIC ACID (2,4-D)	Oral	Int.	0.2 mg/kg/day	100	Renal	Final	07/20	94-75-7
		Chr.	0.2 mg/kg/day	100	Renal			
1,2-DICHLOROPROPANE	Inh.	Acute	0.02 ppm	90	Resp.	Final	11/21	78-87-5
		Int.	2 ppb	30	Resp.			
	Oral	Acute	0.3 mg/kg/day	100	Hemato.			
		Int.	0.07 mg/kg/day	1000	Hemato.			
1,3-DICHLOROPROPENE	Inh.	Int.	0.008 ppm	30	Resp.	Final	09/08	542-75-6
		Chr.	0.007 ppm	30	Resp.			
	Oral	Int.	0.04 mg/kg/day	100	Gastro.			
		Chr.	0.03 mg/kg/day	100	Gastro.			
2,3-DICHLOROPROPENE	Inh.	Acute	0.002 ppm	90	Resp.	Final	09/08	78-88-6

DICHLORVOS	Inh.	Acute	0.002 ppm	100	Neurol.	Final	09/97	62-73-7
		Int.	0.0003 ppm	100	Neurol.			
		Chr.	0.00006 ppm	100	Neurol.			
	Oral	Acute	0.004 mg/kg/day	1000	Neurol.			
		Int.	0.003 mg/kg/day	10	Neurol.			
		Chr.	0.0005 mg/kg/day	100	Neurol.			
DIELDRIN	Oral	Int.	0.1 ug/kg/day	100	Neurol.	Final	06/22	60-57-1
		Chr.	0.05 ug/kg/day	100	Hepatic			
DI (2-ETHYLHEXYL) PHTHALATE (DEHP)	Inh.	Int.	0.2 ppb	300	Develop.	Final	01/22	117-81-7
		Oral	Acute	3 ug/kg/day	300			
	Int.	0.1 ug/kg/day	300	Develop.				
DIETHYL PHTHALATE	Oral	Acute	7 mg/kg/day	300	Reprod.	Final	06/95	84-66-2
		Int.	6 mg/kg/day	300	Hepatic			
DIISOPROPYL METHYLPHOSPHONATE (DIMP)	Oral	Int.	0.8 mg/kg/day	100	Hemato.	Final	08/98	1445-75-6
		Chr.	0.6 mg/kg/day	100	Hemato.			
DIMETHYLARSINIC ACID (DMA)	Oral	Chr.	0.02 mg/kg/day	100	Renal	Final	08/07	75-60-5
1,1-DIMETHYLHYDRAZINE	Inh.	Int.	0.0002 ppm	300	Hepatic	Final	09/97	57-14-7
1,2-DIMETHYLHYDRAZINE	Oral	Int.	0.0008 mg/kg/day	1000	Hepatic	Final	09/97	540-73-8
1,3-DINITROBENZENE	Oral	Acute	0.08 mg/kg/day	100	Reprod.	Final	06/95	99-65-0
		Int.	0.0005 mg/kg/day	1000	Hemato.			
4,6-DINITRO-O-CRESOL	Oral	Acute	0.004 mg/kg/day	100	Neurol.	Final	01/18	534-52-1
		Int.	0.004 mg/kg/day	100	Neurol.			
2,4-DINITROPHENOL	Oral	Int.	0.07 ug/kg/day	1000	Body Wt.	Final	08/21	51-28-5
2,3-DINITROTOLUENE	Oral	Acute	0.09 mg/kg/day	3000	Renal	Final	02/16	602-01-7
2,4-DINITROTOLUENE	Oral	Acute	0.05 mg/kg/day	100	Neurol.	Final	02/16	121-14-2
		Int.	0.007 mg/kg/day	100	Hemato.			
		Chr.	0.001 mg/kg/day	100	Hemato.			
2,5-DINITROTOLUENE	Oral	Acute	0.007 mg/kg/day	300	Hemato.	Final	02/16	619-15-8
2,6-DINITROTOLUENE	Oral	Acute	0.09 mg/kg/day	100	Hemato.	Final	02/16	606-20-2
		Int.	0.004 mg/kg/day	1000	Hemato.			

3,4-DINITROTOLUENE	Oral	Acute	0.03 mg/kg/day	300	Hemato.	Final	02/16	610-39-9
3,5-DINITROTOLUENE	Oral	Acute	0.03 mg/kg/day	300	Reprod.	Final	02/16	618-85-9
DI-N-OCTYL PHTHALATE	Oral	Acute	3 mg/kg/day	300	Hepatic	Final	09/97	117-84-0
		Int.	0.4 mg/kg/day	100	Hepatic			
1,4-DIOXANE	Inh.	Acute	2 ppm	10	Ocular	Final	04/12	123-91-1
		Int.	0.2 ppm	30	Resp.			
		Chr.	0.03 ppm	300	Resp.			
	Oral	Acute	5 mg/kg/day	100	Develop.			
		Int.	0.5 mg/kg/day	100	Hepatic			
		Chr.	0.1 mg/kg/day	100	Hepatic			
1,2-DIPHENYLHYDRAZINE	Oral	Int.	0.05 mg/kg/day	100	Hepatic	Final	10/20	122-66-7
DISULFOTON	Inh.	Acute	0.6 ug/m3	30	Neurol.	Final	08/22	298-04-4
		Int.	0.6 ug/m3	30	Neurol.			
	Oral	Acute	0.3 ug/kg/day	100	Neurol.			
		Int.	0.09 ug/kg/day	100	Neurol., Develop.			
		Chr.	0.06 ug/kg/day	1000	Neurol.			
ENDOSULFAN	Oral	Acute	0.007 mg/kg/day	100	Neurol.	Final	08/15	115-29-7
		Int.	0.005 mg/kg/day	100	Immuno.			
		Chr.	0.005 mg/kg/day	100	Immuno.			
ENDRIN	Oral	Acute	0.6 ug/kg/day	100	Neurol.	Final	03/21	72-20-8
		Int.	0.6 ug/kg/day	100	Neurol.			
		Chr.	0.3 ug/kg/day	100	Neurol., Hepatic			
ETHION	Oral	Acute	0.002 mg/kg/day	30	Neurol.	Final	09/00	563-12-2
		Int.	0.002 mg/kg/day	30	Neurol.			
		Chr.	0.0004 mg/kg/day	150	Neurol.			
ETHYLBENZENE	Inh.	Acute	5 ppm	30	Neurol.	Final	11/10	100-41-4
		Int.	2 ppm	30	Neurol.			
		Chr.	0.06 ppm	300	Renal			
	Oral	Int.	0.4 mg/kg/day	30	Hepatic			
ETHYLENE GLYCOL	Inh.	Acute	2 mg/m3	10	Resp.	Final	11/10	107-21-1
	Oral	Acute	0.8 mg/kg/day	100	Develop.			
		Int.	0.8 mg/kg/day	100	Develop.			



ETHYLENE OXIDE	Inh.	Acute	0.4 ppm	30	Develop.	Final	08/22	75-21-8
	Inh.	Int.	0.07 ppm	30	Develop.			
FLUORANTHENE	Oral	Int.	0.4 mg/kg/day	300	Hepatic	Final	08/95	206-44-0
FLUORENE	Oral	Int.	0.4 mg/kg/day	300	Hepatic	Final	08/95	86-73-7
FLUORIDE, SODIUM	Oral	Chr.	0.05 mg/kg/day	3	Musculo.	Final	09/03	7681-49-4
FLUORINE	Inh.	Acute	0.01 ppm	10	Resp.	Final	09/03	7782-41-4
FORMALDEHYDE	Inh.	Acute	0.04 ppm	9	Resp.	Final	07/99	50-00-0
		Int.	0.03 ppm	30	Resp.			
		Chr.	0.008 ppm	30	Resp.			
	Oral	Int.	0.3 mg/kg/day	100	Gastro.			
		Chr.	0.2 mg/kg/day	100	Gastro.			
FUEL OIL NO.2	Inh.	Acute	0.02 mg/m3	1000	Neurol.	Final	06/95	68476-30-2
GLUTARALDEHYDE	Inh.	Acute	0.001 ppm	3	Resp.	Final	07/17	111-30-8
		Int.	0.00003 ppm	3	Resp.			
	Oral	Chr.	0.1 mg/kg/day	30	Gastro.			
GLYPHOSATE TECHNICAL	Oral	Acute	1 mg/kg/day	100	Gastro.	Final	08/20	1071-83-6
		Int.	1 mg/kg/day	100	Gastro.			
		Chr.	1 mg/kg/day	100	Gastro.			
GUTHION (AZINPHOS-METHYL)	Inh.	Acute	0.02 mg/m3	30	Neurol.	Final	09/08	86-50-0
		Int.	0.01 mg/m3	30	Neurol.			
		Chr.	0.01 mg/m3	30	Neurol.			
	Oral	Acute	0.01 mg/kg/day	100	Neurol.			
		Int.	0.003 mg/kg/day	100	Neurol.			
		Chr.	0.003 mg/kg/day	100	Neurol.			
HEPTACHLOR	Oral	Acute	0.0006 mg/kg/day	3000	Reprod.	Final	08/07	76-44-8
		Int.	0.0001 mg/kg/day	300	Immuno.			
HEXACHLOROBENZENE	Oral	Acute	0.008 mg/kg/day	300	Develop.	Final	08/15	118-74-1
		Int.	0.0001 mg/kg/day	90	Reprod.			
		Chr.	0.00007 mg/kg/day	300	Hepatic			
HEXACHLOROBUTADIENE	Oral	Acute	6 ug/kg/day	1000	Renal	Final	03/21	87-68-3
	Oral	Int.	2 ug/kg/day	100	Renal			

ALPHA-HEXACHLOROCYCLOHEXANE ( $\alpha$ -HCH)	Oral	Int. Chr.	2 ug/kg/day 0.9 ug/kg/day	1000 1000	Hepatic Hepatic	Final	03/24	319-84-6
BETA-HEXACHLOROCYCLOHEXANE ( $\beta$ -HCH)	Oral	Acute Int.	0.08 mg/kg/day 0.6 ug/kg/day	100 300	Neurol. Hepatic	Final	03/24	319-85-7
GAMMA-HEXACHLOROCYCLOHEXANE ( $\gamma$ -HCH)	Oral	Acute Int.	3 ug/kg/day 0.8 ng/kg/day	300 100	Develop. Develop.	Final	03/24	58-89-9
HEXACHLOROCYCLOPENTADIENE	Inh. Oral	Int. Chr. Int.	0.01 ppm 0.0002 ppm 0.1 mg/kg/day	30 90 100	Resp. Resp. Renal	Final	07/99	77-47-4
1,2,3,6,7,8-HEXACHLORODIBENZOFURAN	Oral	Int.	5 ng/kg/day	100	Hepatic,Endocr.	Final	04/23	57117-44-9
HEXACHLOROETHANE	Inh. Oral	Acute Int. Acute Int.	6 ppm 6 ppm 1 mg/kg/day 0.01 mg/kg/day	30 30 100 100	Neurol. Neurol. Hepatic Hepatic	Final	09/97	67-72-1
HEXAMETHYLENE DIISOCYANATE	Inh.	Int. Chr.	0.00003 ppm 0.00001 ppm	30 90	Resp. Resp.	Final	08/98	822-06-0
n-HEXANE	Inh. Oral	Acute Int. Int.	6 ppm 0.4 ppm 0.1 mg/kg/day	30 300 300	Develop. Resp. Neurol.	Draft	05/24	110-54-3
2-HEXANONE	Oral	Chr.	0.05 mg/kg/day	3000	Neurol.	Final	02/20	591-78-6
HMX (CYCLOTETRAMETHYLENE TETRANITRAMINE)	Oral	Acute Int.	0.1 mg/kg/day 0.05 mg/kg/day	1000 1000	Neurol. Hepatic	Final	09/97	2691-41-0
HYDRAZINE	Inh.	Int.	0.004 ppm	300	Hepatic	Final	09/97	302-01-2
HYDROGEN FLUORIDE	Inh.	Acute	0.02 ppm	30	Resp.	Final	09/03	7664-39-3
HYDROGEN SULFIDE	Inh.	Acute Int.	0.07 ppm 0.02 ppm	27 30	Resp. Resp.	Final	11/16	7783-06-4
IODIDE	Oral	Acute Chr.	0.01 mg/kg/day 0.01 mg/kg/day	1 1	Endocr. Endocr.	Final	04/04	7553-56-2
IONIZING RADIATION, N.O.S.	Rad.	Acute Chr.	4 mSv 1 mSv/yr	3 3	Neurol. Other	Final	09/99	HZ1800-45-T

ISOPHORONE	Oral	Int.	3 mg/kg/day	100	Other	Final	07/18	78-59-1
		Chr.	0.2 mg/kg/day	1000	Hepatic			
JP-4	Inh.	Int.	9 mg/m3	300	Hepatic	Final	06/95	50815-00-4
JP-5	Inh.	Int.	2 mg/m3	90	Hepatic	Final	03/17	8008-20-6
JP-7	Inh.	Chr.	0.3 mg/m3	300	Hepatic	Final	06/95	HZ0600-22-T
JP-8	Inh.	Int.	3 mg/m3	30	Neurol.	Final	03/17	8008-20-6
	Oral	Acute	3 mg/kg/day	100	Immuno.			
		Int.	0.3 mg/kg/day	1000	Develop.			
KEROSENE	Inh.	Int.	0.01 mg/m3	1000	Hepatic	Final	06/95	8008-20-6
MALATHION	Inh.	Acute	0.2 mg/m3	100	Neurol.	Final	09/03	121-75-5
		Int.	0.02 mg/m3	1000	Resp.			
	Oral	Int.	0.02 mg/kg/day	10	Neurol.			
		Chr.	0.02 mg/kg/day	100	Neurol.			
MANGANESE, RESPIRABLE	Inh.	Chr.	0.3 ug/m3	100	Neurol.	Final	09/12	7439-96-5
MERCURIC CHLORIDE	Oral	Acute	0.002 mg/kg/day	100	Renal	Final	10/24	7487-94-7
		Int.	0.00001 mg/kg/day	1000	Renal			
MERCURY	Inh.	Chr.	0.3 ug/m3	10	Neurol.	Final	10/24	7439-97-6
METHOXYCHLOR	Oral	Int.	0.005 mg/kg/day	1000	Reprod.	Final	09/02	72-43-5
4,4'-METHYLENEBIS(2-CHLOROANILINE) (MBOCA)	Oral	Chr.	0.003 mg/kg/day	3000	Hepatic	Final	10/17	101-14-4
METHYLENE CHLORIDE	Inh.	Acute	0.6 ppm	100	Neurol.	Final	09/00	75-09-2
		Int.	0.3 ppm	90	Hepatic			
		Chr.	0.3 ppm	30	Hepatic			
	Oral	Acute	0.2 mg/kg/day	100	Neurol.			
		Chr.	0.06 mg/kg/day	100	Hepatic			
4,4'-METHYLENEDIANILINE	Oral	Acute	0.2 mg/kg/day	150	Hepatic	Final	08/98	101-77-9
		Int.	0.08 mg/kg/day	100	Hepatic			
METHYLENEDIPHENYL DIISOCYANATE (MDI), POLYMERIC	Inh.	Chr.	0.001 mg/m3	30	Resp.	Final	06/18	9016-87-9

METHYLMERCURY	Oral	Chr.	0.1 ug/kg/day	3	Develop.	Final	10/24	22967-92-6
1-METHYLNAPHTHALENE	Inh.	Int.	0.09 ppm	30	Resp.	Draft	05/24	90-12-0
	Oral	Int.	0.6 mg/kg/day	100	Hepatic			
		Chr.	0.07 mg/kg/day	1000	Resp.			
2-METHYLNAPHTHALENE	Inh.	Int.	0.3 ppb	300	Resp.	Draft	05/24	91-57-6
	Oral	Chr.	0.06 mg/kg/day	100	Resp.			
METHYL PARATHION	Oral	Int.	0.0007 mg/kg/day	300	Neurol.	Final	09/01	298-00-0
		Chr.	0.0003 mg/kg/day	100	Hemato.			
METHYL <i>tert</i> -BUTYL ETHER (MTBE)	Inh.	Acute	2 ppm	30	Neurol.	Final	09/23	1634-04-4
		Int.	1 ppm	30	Neurol.,Hepatic			
		Chr.	1 ppm	30	Renal			
	Oral	Int.	0.4 mg/kg/day	100	Develop.			
MIREX	Oral	Chr.	0.3 ug/kg/day	300	Hepatic	Final	10/20	2385-85-5
MOLYBDENUM	Inh.	Chr.	2 ug/m3	30	Resp.	Final	05/20	1313-27-5
	Oral	Int.	0.06 mg/kg/day	300	Renal			7439-98-7
MONOMETHYLARSONIC ACID (MMA)	Oral	Int.	0.1 mg/kg/day	100	Gastro.	Final	08/07	124-58-3
		Chr.	0.01 mg/kg/day	100	Renal			
NAPHTHALENE	Inh.	Acute	0.06 ppb	30	Resp.	Draft	05/24	91-20-3
	Oral	Acute	0.2 mg/kg/day	300	Neurol.			
		Int.	0.2 mg/kg/day	300	Neurol.			
NICKEL	Inh.	Acute	0.0001 mg/m3	300	Resp.	Final	10/24	7440-02-0
		Int.	0.000003 mg/m3	30	Resp.			
NITRATE	Oral	Acute	4 mg/kg/day	1	Hemato.	Final	07/17	14797-55-8
		Int.	4 mg/kg/day	1	Hemato.			
		Chr.	4 mg/kg/day	1	Hemato.			
NITRITE	Oral	Acute	0.1 mg/kg/day	2	Hemato.	Final	07/17	14797-65-0
		Int.	0.1 mg/kg/day	2	Hemato.			
		Chr.	0.1 mg/kg/day	2	Hemato.			

NITROBENZENE	Inh.	Acute	0.1 ppm	30	Hemato.	Final	01/24	98-95-3		
		Int.	3 ppb	300	Hemato.					
		Chr.	0.2 ppb	300	Resp.					
	Oral	Acute	0.05 mg/kg/day	100	Hemato.					
		Int.	0.02 mg/kg/day	100	Hemato.					
N-NITROSODIMETHYLAMINE (NDMA)	Oral	Acute	0.01 ug/kg/day	100	Hemato.	Final	04/23	62-75-9		
PARATHION	Inh.	Int.	20 ng/m3	100	Neurol.	Final	01/17	56-38-2		
		Oral	Int.	0.009 mg/kg/day	10				Neurol.	
1,2,3,7,8-PENTACHLORODIBENZOFURAN	Oral	Int.	7 ng/kg/day	100	Hepatic	Final	04/23	57117-41-6		
2,3,4,7,8-PENTACHLORODIBENZOFURAN	Oral	Acute	0.5 ng/kg/day	1000	Develop.	Final	04/23	57117-31-4		
		Int.	7 pg/kg/day	100	Endocr.					
		Chr.	4 pg/kg/day	1000	Hepatic,Endocr.					
PENTACHLOROPHENOL	Oral	Acute	5 ug/kg/day	1000	Develop.	Final	04/22	87-86-5		
		Chr.	5 ug/kg/day	300	Hepatic					
PERCHLORATES	Oral	Chr.	0.0007 mg/kg/day	10	Endocr.	Final	09/08	14797-73-0		
PERMETHRIN	Oral	Acute	0.3 mg/kg/day	100	Neurol.	Final	09/03	52645-53-1		
		Int.	0.2 mg/kg/day	100	Neurol.					
PHENOL	Oral	Acute	1 mg/kg/day	100	Body Wt.	Final	09/08	108-95-2		
PHOSPHORUS, WHITE	Inh.	Acute	0.02 mg/m3	30	Resp.	Final	09/97	7723-14-0		
		Oral	Int.	0.0002 mg/kg/day	100				Reprod.	
POLYBROMINATED BIPHENYLS (PBBs)	Oral	Acute	0.01 mg/kg/day	100	Endocr.	Final	09/04	36355-01-8		
POLYBROMINATED DIPHENYL ETHERS (PBDEs), LOWER BROMINATED	Inh.	Int.	0.006 mg/m3	90	Endocr.	Final	03/17	32536-52-0		
		Oral	Acute	0.00006 mg/kg/day	1000				Develop.	60348-60-9
		Int.	0.000003 mg/kg/day	300	Reprod.				5436-43-1	
PBDEs, DECABROMINATED	Oral	Acute	0.01 mg/kg/day	100	Develop.	Final	03/17	1163-19-5		
		Int.	0.0002 mg/kg/day	300	Endocr.					
PERFLUOROHEXANE SULFONIC ACID (PFHxS)	Oral	Int.	0.02 ug/kg/day	300	Endocr.	Final	03/20	355-46-4		
PERFLUORONONANOIC ACID (PFNA)	Oral	Int.	3 ng/kg/day	300	Develop.	Final	03/20	375-95-1		

PERFLUOROOCCTANOIC ACID (PFOA)	Oral	Int.	3 ng/kg/day	300	Develop.	Final	03/20	335-67-1
PERFLUOROOCCTANE SULFONIC ACID (PFOS)	Oral	Int.	2 ng/kg/day	300	Develop.	Final	03/20	1763-23-1
POLYCHLORINATED BIPHENYLS (PCBs) (Aroclor 1254)	Oral	Int. Chr.	0.03 ug/kg/day 0.02 ug/kg/day	300 300	Neurol. Immuno.	Final	11/00	11097-69-1
PROPYLENE GLYCOL	Inh.	Int.	0.009 ppm	1000	Resp.	Final	09/97	57-55-6
PROPYLENE GLYCOL DINITRATE	Inh.	Acute Int. Chr.	0.003 ppm 0.00004 ppm 0.00004 ppm	10 1000 1000	Neurol. Hemato. Hemato.	Final	06/95	6423-43-4
RDX (Cyclonite)	Oral	Acute Int. Chr.	0.2 mg/kg/day 0.1 mg/kg/day 0.1 mg/kg/day	30 30 30	Neurol. Neurol. Neurol.	Final	01/12	121-82-4
REFRACTORY CERAMIC FIBERS	Inh.	Chr.	0.03 fibers/cc	30	Resp.	Final	09/04	HZ0900-26-T
SELENIUM	Oral	Chr.	0.005 mg/kg/day	3	Dermal	Final	09/03	7782-49-2
STRONTIUM	Oral	Int.	2 mg/kg/day	90	Musculo.	Final	04/04	7440-24-6
STYRENE	Inh. Oral	Acute Chr. Acute	5 ppm 0.2 ppm 0.1 mg/kg/day	10 30 1000	Neurol. Neurol. Neurol.	Final	11/10	100-42-5
SULFUR DIOXIDE	Inh.	Acute	0.01 ppm	9	Resp.	Final	12/98	7446-09-5
SULFUR MUSTARD	Inh. Oral	Acute Int. Acute Int.	0.0007 mg/m3 0.00002 mg/m3 0.5 ug/kg/day 0.07 ug/kg/day	30 30 1000 300	Ocular Ocular Develop. Gastro.	Final	09/03	505-60-2
2,3,7,8-TETRACHLORODIBENZO-P-DIOXIN	Oral	Acute Chr.	0.0002 ug/kg/day 0.0000004 ug/kg/day	21 300	Immuno. Develop.	Draft	10/24	1746-01-6
1,1,2,2-TETRACHLOROETHANE	Oral	Int.	0.5 mg/kg/day	100	Hepatic	Final	09/08	79-34-5

TETRACHLOROETHYLENE	Inh.	Acute	0.006 ppm	300	Neurol.	Final	06/19	127-18-4	
		Int.	0.006 ppm	300	Neurol.				
		Chr.	0.006 ppm	300	Neurol.				
	Oral	Acute	0.008 mg/kg/day	300	Neurol.				
		Int.	0.008 mg/kg/day	300	Neurol.				
		Chr.	0.008 mg/kg/day	300	Neurol.				
2,3,4,6-TETRACHLOROPHENOL	Oral	Acute	0.08 mg/kg/day	100	Hepatic	Final	06/22	58-90-2	
		Int.	0.01 mg/kg/day	100	Hepatic				
TIN, INORGANIC	Oral	Int.	0.3 mg/kg/day	100	Hemato.	Final	08/05	7440-31-5	
TIN, DIBUTYL-, DICHLORIDE	Oral	Int.	0.005 mg/kg/day	1000	Immuno.	Final	08/05	683-18-1	
TIN, TRIBUTYL-, OXIDE	Oral	Int.	0.0003 mg/kg/day	100	Immuno.	Final	08/05	56-35-9	
		Chr.	0.0003 mg/kg/day	100	Immuno.				
TITANIUM TETRACHLORIDE	Inh.	Int.	0.01 mg/m3	90	Resp.	Final	09/97	7550-45-0	
		Chr.	0.0001 mg/m3	90	Resp.				
TOLUENE	Inh.	Acute	2 ppm	9	Neurol.	Final	06/17	108-88-3	
		Chr.	1 ppm	10	Neurol.				
	Oral	Acute	0.8 mg/kg/day	300	Neurol.				
		Int.	0.2 mg/kg/day	100	Immuno.				
TOLUENE DIISOCYANATE (TDI)	Inh.	Acute	0.00001 ppm	100	Resp.	Final	06/18	26471-62-5	
		Chr.	0.000003 ppm	100	Resp.				
TOXAPHENE	Oral	Acute	0.05 mg/kg/day	100	Neurol.	Final	10/14	8001-35-2	
		Int.	0.002 mg/kg/day	100	Immuno.				
TRIBUTYL PHOSPHATE (TnBP)	Oral	Acute	1.1 mg/kg/day	100	Body Wt.	Final	09/12	126-73-8	
		Int.	0.08 mg/kg/day	100	Renal				
		Chr.	0.08 mg/kg/day	100	Renal				
S,S,S-TRIBUTYL PHOSPHOROTRITHIOATE (TRIBUFOS)	Inh.	Int.	0.04 mg/m3	30	Neurol.	Final	03/20	78-48-8	
		Oral	Int.	3 ug/kg/day	100				Neurol.
		Chr.	0.5 ug/kg/day	100	Gastro.				
1,2,4-TRICHLOROBENZENE	Oral	Int.	0.1 mg/kg/day	100	Hepatic	Final	10/14	120-82-1	
		Chr.	0.1 mg/kg/day	100	Hepatic				

1,1,1-TRICHLOROETHANE	Inh.	Acute	1 ppm	100	Neurol.	Final	03/24	71-55-6
		Int.	0.7 ppm	100	Neurol.			
	Oral	Int.	2 mg/kg/day	100	Body Wt.			
1,1,2-TRICHLOROETHANE	Inh.	Acute	0.03 ppm	270	Resp.	Final	03/21	79-00-5
		Int.	2 ppb	30	Resp.			
	Oral	Acute	0.5 mg/kg/day	100	Hepatic			
		Int.	0.04 mg/kg/day	100	Immuno.			
TRICHLOROETHYLENE	Inh.	Int.	0.0004 ppm	10	Develop.	Final	06/19	79-01-6
				100	Immuno.			
		Chr.	0.0004 ppm	10	Develop.			
				100	Immuno.			
	Oral	Int.	0.0005 mg/kg/day	10	Develop.			
				100	Immuno.			
	Chr.	0.0005 mg/kg/day	1000	Immuno.				
			10	Develop.				
			100	Immuno.				
			1000	Immuno.				
2,4,5-TRICHLOROPHENOL	Oral	Int.	1 mg/kg/day	100	Hepatic, Renal	Final	06/22	95-95-4
2,4,6-TRICHLOROPHENOL	Oral	Int.	5 ug/kg/day	100	Hepatic	Final	06/22	88-06-2
1,2,3-TRICHLOROPROPANE	Inh.	Acute	1 ppb	30	Resp.	Final	08/21	96-18-4
		Oral	Int.	0.03 mg/kg/day	100			
	Oral	Chr.	0.01 mg/kg/day	100	Hepatic			
TRICRESYL PHOSPHATE (TCP)	Oral	Int.	0.04 mg/kg/day	100	Reprod.	Final	09/12	1330-78-5
		Chr.	0.02 mg/kg/day	100	Reprod.			
2,4,6-TRINITROTOLUENE	Oral	Int.	0.0005 mg/kg/day	1000	Hepatic	Final	06/95	118-96-7
TRIS (2-BUTOXYETHYL) PHOSPHATE (TBEP)	Oral	Acute	4.8 mg/kg/day	100	Body Wt.	Final	09/12	78-51-3
		Int.	0.09 mg/kg/day	100	Hepatic			
TRIS (2-CHLOROETHYL) PHOSPHATE (TCEP)	Oral	Int.	0.6 mg/kg/day	100	Neurol.	Final	09/12	115-96-8
		Chr.	0.2 mg/kg/day	100	Renal			
TRIS (1,3-DICHLORO-2-PROPYL) PHOSPHATE (TDCP)	Oral	Int.	0.05 mg/kg/day	100	Renal	Final	09/12	13674-87-8
		Chr.	0.02 mg/kg/day	100	Renal			



URANIUM, SOLUBLE SALTS	Inh.	Int.	0.0001 mg/m3	300	Renal	Final	02/13	7440-61-1
		Chr.	0.00004 mg/m3	100	Renal			
	Oral	Acute	0.002 mg/kg/day	100	Develop.			
		Int.	0.0002 mg/kg/day	300	Renal			
URANIUM, INSOLUBLE COMPOUNDS	Inh.	Int.	0.002 mg/m3	100	Renal	Final	02/13	7440-61-1
		Chr.	0.0008 mg/m3	1000	Resp.			
VANADIUM	Inh.	Acute	0.0008 mg/m3	90	Resp.	Final	09/12	7440-62-2
		Chr.	0.0001 mg/m3	30	Resp.			
	Oral	Int.	0.01 mg/kg/day	10	Hemato.			
VINYL ACETATE	Inh.	Acute	1 ppm	30	Resp.	Draft	08/23	108-05-4
		Int.	0.7 ppm	30	Resp.			
		Chr.	0.3 ppm	30	Resp.			
VINYL CHLORIDE	Inh.	Acute	0.5 ppm	30	Develop.	Final	01/24	75-01-4
		Int.	0.02 ppm	30	Hepatic			
	Oral	Chr.	3 ug/kg/day	30	Hepatic			
XYLENES, MIXED	Inh.	Acute	2 ppm	30	Neurol.	Final	08/07	1330-20-7
		Int.	0.6 ppm	90	Neurol.			
		Chr.	0.05 ppm	300	Neurol.			
	Oral	Acute	1 mg/kg/day	100	Neurol.			
		Int.	0.4 mg/kg/day	1000	Neurol.			
		Chr.	0.2 mg/kg/day	1000	Neurol.			
ZINC	Oral	Int.	0.3 mg/kg/day	3	Hemato.	Final	08/05	7440-66-6
		Chr.	0.3 mg/kg/day	3	Hemato.			

\* Total Factors: Final value of all uncertainty and modifying factors, multiplied together

Total number of MRLs: 483  
174 Inhalation, 305 Oral, and 4 External Radiation MRLs

For Duration, Acute = 1 to 14 days, Intermediate = 15 to 364 days, and Chronic = 1 year or longer

For general information on ATSDR Minimal Risk Levels, see [www.atsdr.cdc.gov/MRLs](http://www.atsdr.cdc.gov/MRLs).

For more information on a specific MRL, please refer to our Toxicological Profiles, particularly Appendix A of Profiles released after 1995.

The Toxicological Profiles can be found online at [www.atsdr.cdc.gov/ToxProfiles](http://www.atsdr.cdc.gov/ToxProfiles).  
You can also find ATSDR contact information here, or call 1-800-CDC-INFO (1-800-232-4636).