



CHEM-IQSM

Chemistry Innovation and Quality Program

Appendix: Substances to Avoid List

Appendix: Substances to Avoid List

NOTE: All concentration thresholds are in reference to the substance concentration within a chemical formulation (i.e. a factory purchased trade name chemical formulation). The listed concentrations do not relate in any way to the concentration of the corresponding substance on a consumer product.

*** Further professional review of identified concentrations of marked substances in the "ORANGE" category is required to determine if such substances result in a "RED" or "ORANGE" classification, defined as "Requiring due diligence in handling and process control."**

Substance Name	CAS No.	CHEM-IQ SM CATEGORY CONCENTRATION THRESHOLDS			
		Preferred (mg/kg)	Allowed (mg/kg)	Prohibited / phase out (mg/kg)	Requiring due diligence* (mg/kg)
Acetaldehyde	75-07-0	<2000	2000-50000	>50000	-
Acetic acid	64-19-7	<2000	2000-50000	-	>50000
Acetone	67-64-1	<2000	2000-50000	-	>50000
Acetophenone	98-86-2	<250	250-1000	-	>1000
Acrolein	107-02-8	<250	250-1000	>1000	-
Acrylamide	79-06-1	<10	10-500	>500	-
Acrylic acid	79-10-7	<250	250-1000	>1000	-
Acrylonitrile	107-13-1	<10	10-500	>500	-
2-(2-)Aminoethylamino ethanol (AEEA, and related fatty acid esters and amides)	111-41-1	<10	10-500	-	>500
2-Amino-4-Chlorophenol	95-85-2	<10	10-500	>500	-
Amyl cinnamal	122-40-7	<250	250-1000	>1000	-
Amylcinnamyl alcohol	101-85-9	<250	250-1000	>1000	-
Aniline	62-53-3	<10	10-1000	>1000	-
Anisyl alcohol	105-13-5	<250	250-1000	>1000	-
Azobenzene	103-33-3	<10	10-500	>500	-
Benzene	71-43-2	<10	10-500	>500	-
2-2H-Benzotriazol-2-yl-4-(tert-butyl)-6-(sec-butyl)phenol (UV-350)	36437-37-3	<10	10-500	>500	-
2-Benzotriazol-2-yl-4,6-di-tert-butylphenol (UV-320)	3846-71-7	<10	10-500	>500	-
2-2H-Benzotriazol-2-yl-4,6-di-tert-pentylphenol (UV-328)	25973-55-1	<10	10-500	>500	-
Benzyl alcohol	100-51-6	<250	250-1000	-	>1000
Benzyl benzoate	120-51-4	<250	250-1000	-	>1000
Benzyl chloride	100-44-7	<10	10-500	>500	-
Benzyl cinnamate	103-41-3	<250	250-1000	>1000	-
Benzyl cyanide	140-29-4	<250	250-1000	>1000	-
Benzyl salicylate	118-58-1	<250	250-1000	>1000	-
Biphenyl	92-52-4	<250	250-1000	-	>1000

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Substance Name	CAS No.	Preferred (mg/kg)	Allowed (mg/kg)	Prohibited / phase out (mg/kg)	Requiring due diligence* (mg/kg)
Bis(2,3-dibromopropyl ether) of tetrabromobisphenol	21850-44-2	≤10	-	>10	-
Bis(2,3-dibromopropyl) phosphate	5412-25-9	≤10	-	>10	-
1,2-Bis(2-methoxyethoxy)ethane (TEGDME, triglyme)	112-49-2	<10	10-500	>500	-
Bis(2-methoxyethyl)ether (Diglyme)	111-96-6	<10	10-500	>500	-
2,2-Bis(bromomethyl)-1,3-propanediol (BBMP)	3296-90-0	<10	10-500	>500	-
Bis(chloromethyl)ether	542-88-1	≤10	-	>10	-
2,2-Bis(chloromethyl)trimethylene bis(bis(2-chloroethyl)phosphate) (V6)	38051-10-4	<10	10-500	>500	-
Bisphenol A	80-05-7	<10	10-500	>500	-
Bisphenol F	620-92-8	<10	10-500	>500	-
Bisphenol S	80-09-1	<10	10-500	>500	-
1-Bromopropane	106-94-5	<10	10-500	>500	-
Boric acid	10043-35-3 11113-50-1	<10	10-500	>500	-
But-2-yne-1,4-diol	110-65-6	<10	10-500	>500	-
1,3-Butadiene	106-99-0	<10	10-500	>500	-
<i>n</i> -Butanol	71-36-3	<2000	2000-50000	-	>50000
2-Butanone oxime	96-29-7	<10	10-500	-	>500
2-Butoxyethanol	111-76-2	<2000	2000-50000	-	>50000
2-Butoxyethylacetate	112-07-2	<2000	2000-50000	-	>50000
Butyl paraben	94-26-8	<10	10-500	>500	-
5- <i>tert</i> -Butyl-2,4,6-trinitro- <i>m</i> -xylene	81-15-2	<10	10-500	>500	-
Butylacrylate	141-32-2	<250	250-1000	>1000	-
Butylated hydroxyanisol (BHA)	25013-16-5	<10	10-500	>500	-
2-Butyldiglycol	112-34-5	<2000	2000-50000	-	>50000
Butylmethacrylate	97-88-1	<250	250-1000	>1000	-
4- <i>tert</i> -Butylphenol	98-54-4	<250	250-1000	-	>1000
C9 Aromatic methyl, ethyl substituted hydrocarbons Group	526-73-8 95-63-6 108-67-8 25551-13-7 25550-14-5 611-14-3 620-14-4 622-96-8 64742-95-6	<10	10-500	-	>500
Caprolactam	105-60-2	<2000	2000-50000	-	>50000
Carbon disulphide	75-15-0	<10	10-500	>500	-
2-Chloroacetamide	79-07-2	<250	250-1000	>1000	-

		CHEM-IQ SM CATEGORY CONCENTRATION THRESHOLDS			
Substance Name	CAS No.	Preferred (mg/kg)	Allowed (mg/kg)	Prohibited / phase out (mg/kg)	Requiring due diligence* (mg/kg)
Chlorinated Paraffins (CP) of unspecified carbon chain length and degree of chlorination, various including: Alkanes, C12-13, chloro; Alkanes C6-18, chloro; Alkanes, chloro; Paraffin waxes and hydrocarbon waxes, chloro; Short-chain chlorinated paraffins (SCCP) with C10-C13; Medium-chain chlorinated paraffins (MCCP) with C14-C17; Long-chain chlorinated paraffins (LCCP) with C>17	Various including 71011-12-6, 68920-70-7, 61788-76-9, 63449-39-8, 85535-84-8, 85535-85-9, 85422-92-0	≤10	-	>10	-
3-Chloro-2-methylpropene	563-47-3	<10	10-500	>500	-
2-Chlorobuta-1,3-diene (Chloroprene)	126-99-8	<10	10-500	>500	-
p-Chlorocresol	59-50-7	<10	10-500	-	>500
2-Chloroethanol	107-07-3	<2000	2000-50000	>50000	-
2-Chloronitrobenzene	88-73-3	<10	10-500	>500	-
Cinnamal	104-55-2	<250	250-1000	>1000	-
Cinnamyl alcohol	104-54-1	<250	250-1000	>1000	-
Citral	5392-40-5	<250	250-1000	>1000	-
Citronellol	106-22-9	<250	250-1000	>1000	-
Colophony (Rosin)	8050-09-7	<250	250-1000	>1000	-
Coumarin	91-64-5	<250	250-1000	>1000	-
Cresol (p-, m-, o-Cresol)	1319-77-3 (isomer mix) 106-44-5 (p) 108-39-4 (m) 95-48-7 (o)	<10	10-500	>500	-
4-Cyanocyclohexene	100-45-8	<250	250-1000	>1000	-
Cyclamen alcohol	4756-19-8	<250	250-1000	>1000	-
Cyclohexane	110-82-7	<2000	2000-50000	>50000	-
Cyclohexanol	108-93-0	<2000	2000-50000	>50000	-
Cyclohexanone	108-94-1	<10	10-500	>500	-
Decabromodiphenyl Ether (DecaBDE)	1163-19-5	<10	10-500	>500	-
Di(2-ethylhexyl) adipate	103-23-1	<2000	2000-50000	-	>50000
Di(hydrogenated tallow alkyl) dimethylammonium chloride (DHTDMAC)	61789-80-8	<10	10-500	>500	-
Di(stearyl) dimethylammonium chloride (DSDMAC)	107-64-2	<10	10-500	>500	-
Di(tallow alkyl) dimethylammonium chloride (DTDMAC)	68783-78-8	<10	10-500	>500	-
Di(2-ethylhexyl) phosphate	298-07-7	<250	250-1000	>1000	-
Di(2-ethylhexyl) phosphite	3658-48-8	<250	250-1000	>1000	-
Diazene-1,2-dicarboxamide (C,C'-azodiformamide, Azodicarboxamid)	123-77-3	<10	10-500	>500	-

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Substance Name	CAS No.	Preferred (mg/kg)	Allowed (mg/kg)	Prohibited / phase out (mg/kg)	Requiring due diligence* (mg/kg)
1,4-Dichloro-2-Nitrobenzene	89-61-2	<10	10-500	>500	-
2,4-Dichloro-1-Nitrobenzene	611-06-3	<10	10-500	>500	-
1,3-Dichloro-2-propanol	96-23-1	<10	10-500	>500	-
1,2-Dichloroethane	107-06-2	<10	10-500	>500	-
1,1-Dichloroethylene	75-35-4	<10	10-500	>500	-
Dichlorophen	97-23-4	<2000	2000-50000	>50000	-
Dicumyl peroxide	80-43-3	<250	250-1000	-	>1000
Diethanolamine (DEA, and related fatty acid esters and amides)	111-42-2	<10	10-500	-	>500
1,2-Diethoxyethane	629-14-1	<10	10-500	>500	-
Diethyl maleate	141-05-9	<250	250-1000	>1000	-
Diethyl sulfate	64-67-5	<10	10-500	>500	-
Diethylene triamine pentaacetic acid (DTPA), sodium salt	140-01-2	<10	10-500	>500	-
Diethylene glycol	111-46-6	<2000	2000-50000	-	>50000
Diethylene triamine	111-40-0	<250	250-1000	-	>1000
Dihydrocoumarin	119-84-6	<250	250-1000	>1000	-
2,4-Dihydroxy-3-methylbenzaldehyde	6248-20-0	<250	250-1000	>1000	-
Di- <i>iso</i> -octyl acid phosphate	27215-10-7	<250	250-1000	>1000	-
Dimethyl citraconate	617-54-9	<250	250-1000	>1000	-
3,5-Dimethyl pyrazole	67-51-6	<10	10-500	-	>500
Dimethyl sulfate	77-78-1	<10	10-500	>500	-
3,7-Dimethyl-2-octen-1-ol (6,7-Dihydrogeraniol)	40607-48-5	<250	250-1000	>1000	-
6,10-Dimethyl-3.5,9-undecatrien-2-one	141-10-6	<250	250-1000	>1000	-
7,11-Dimethyl-4.6,10-dodecatrien-3-one	26651-96-7	<250	250-1000	>1000	-
4,6-Dimethyl-8- <i>tert</i> -butylcoumarin	17874-34-9	<250	250-1000	>1000	-
<i>N,N</i> -Dimethylacetamide (<i>N,N</i> -DMAC)	127-19-5	<10	10-500	>500	-
4-Dimethylaminoazobenzene	60-11-7	<10	10-500	>500	-
<i>N,N</i> -Dimethylformamide (<i>N,N</i> -DMF)	68-12-2	<10	10-500	-	>500
Dimethyl fumarate (DMFu)	624-49-7	<1	1-10	>10	-
2,4-Dinitrotoluene	121-14-2	<10	10-500	>500	-
1,4-Dioxane	123-91-1	<2000	2000-50000	>50000	-
Diphenyl-2-ethylhexylphosphate	1241-94-7	<250	250-1000	>1000	-
Diphenylamine	122-39-4	<250	250-1000	>1000	-
Disodium tetraborate, anhydrous	1303-96-4, 1330-43-4, 12179-04-3	<10	10-500	>500	-

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2,4-Di- <i>tert</i> -butyl-6-(5-chlorobenzotriazol-2-yl) phenol (UV-327)	3864-99-1	<10	10-500	>500	-
Epichlorohydrin	106-89-8	<10	10-500	>500	-
7-Ethoxy-4-methylcoumarin	87-05-8	<250	250-1000	>1000	-
2-Ethoxyethanol acetate	111-15-9	<10	10-500	>500	-
2-Ethoxyethanol; Ethylene glycol monoethyl ether (EGEE)	110-80-5	<10	10-500	>500	-
4-Ethoxyphenol	622-62-8	<250	250-1000	>1000	-
Ethyl acrylate	140-88-5	<10	10-500	>500	-
Ethyl paraben	120-47-8	<10	10-500	>500	-
Ethylbenzene	100-41-4	<10	10-500	>500	-
Ethylene diamine tetraacetic acid (EDTA), sodium salt	60-00-4	<10	10-500	>500	-
Ethylene glycol	107-21-1	<2000	2000-50000	-	>50000
Ethylene oxide	75-21-8	<10	10-500	>500	-
Ethylenediamine	107-15-3	<250	250-1000	>1000	-
Ethyleneglycoldimethylether; 1,2-Dimethoxyethane (EGDME)	110-71-4	<10	10-500	>500	-
Ethyleneimine	151-56-4	<10	10-500	>500	-
2-Ethylhexanoic acid	149-57-5	<10	10-500	>500	-
2-Ethylhexanol	104-76-7	<2000	2000-50000	-	>50000
2-Ethylhexyl acrylate	103-11-7	<250	250-1000	>1000	-
Ethylhexyl diphenyl phosphate (EHDPP)	1241-94-7	<10	10-500	>500	-
2-Ethylhexyl-4-methoxycinnamate	5466-77-3	<10	10-500	>500	-
2-Ethylhexylphosphate	1070-03-7	<250	250-1000	>1000	-
Ethylmethacrylate	97-63-2	<250	250-1000	>1000	-
1-Ethylpyrrolidone	2687-91-4	<10	10-500	-	>500
Eugenol	97-53-0	<250	250-1000	>1000	-
Farnesol	4602-84-0	<250	250-1000	>1000	-
Fatty acids, C16-18, lead salts: leads dipalmitate (5773-56-5), lead distearate (7428-48-0), fatty acids C16-18 (67701-05-5)	91031-62-8	<10	10-500	>500	-
Formaldehyde, oligomeric reaction products with aniline (Technical MDA)	25214-70-4	<10	10-500	>500	-
Formamide	75-12-7	<10	10-500	>500	-
Formic acid	64-18-6	<2000	2000-50000	-	>50000
Fumaric acid bis(2-ethylhexyl)ester	141-02-6	<2000	2000-50000	>50000	-
Geraniol	106-24-1	<250	250-1000	>1000	-
Glycerol	56-81-5	<2000	2000-50000	-	>50000
Glyoxal	107-22-2	<500	500-1000	>1000	-

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Substance Name	CAS No.	Preferred (mg/kg)	Allowed (mg/kg)	Prohibited / phase out (mg/kg)	Requiring due diligence* (mg/kg)
<i>trans</i> -2-Heptenal	18829-55-5	<250	250-1000	>1000	-
Hexabromocyclododecane (HBCDD)	25637-99-4, 3194-55-6, 134237-50-6, 134237-52-8	≤10	-	>10	-
Hexachlorobutadiene	87-68-3	≤10	-	>10	-
Hexahydrocoumarin	700-82-3	<250	250-1000	>1000	-
Hexamethylene tetramine	100-97-0	<250	250-1000	>1000	-
<i>n</i> -Hexane	110-54-3	<10	10-500	>500	-
<i>trans</i> -2-Hexenal diethyl acetal	67746-30-9	<250	250-1000	>1000	-
<i>trans</i> -2-Hexenal dimethyl acetal	18318-83-7	<250	250-1000	>1000	-
Hexyl cinnamaldehyde	101-86-0	<250	250-1000	>1000	-
Hydroabietyl alcohol	13393-93-6	<250	250-1000	>1000	-
4-Hydroxy-4-methylpentane-2-one	123-42-2	<2000	2000-50000	>50000	-
<i>p</i> -Hydroxybenzoic acid	99-96-7	<10	10-500	>500	-
Hydroxycitronellal	107-75-5	<250	250-1000	>1000	-
Hydroxy- methylpentylcyclohexenecarboxaldehyde	31906-04-4	<250	250-1000	>1000	-
Imidazole	288-32-4	<10	10-500	>500	-
Isoeugenol	97-54-1	<250	250-1000	>1000	-
Isophorone	78-59-1	<10	10-500	>500	-
Isopropylated triphenyl phosphate (IPTPP)	68937-41-7	<10	10-500	>500	-
Lilial	80-54-6	<250	250-1000	>1000	-
Limonene	5989-27-5, 138-86-3, 5989-54-8	<250	250-1000	-	>1000
Linalool	78-70-6	<250	250-1000	>1000	-
6-Isopropyl-2-decahydronaphthalenol	34131-99-2	<250	250-1000	>1000	-
Maleic acid bis(2-ethylhexyl)ester	142-16-5	<2000	2000-50000	-	>50000
Mercaptobenzothiazole	149-30-4	<250	250-1000	>1000	-
Methacrylamide	79-39-0	<250	250-1000	>1000	-
Methanol	67-56-1	<2000	2000-50000	-	>50000
1-Methoxy-2-propanol	107-98-2	<2000	2000-50000	-	>50000
1-Methoxy-2-propanolacetate	108-65-6	<2000	2000-50000	>50000	-
7-Methoxycoumarin	531-59-9	<250	250-1000	>1000	-
2-Methoxyethanol; Ethylene glycol monomethyl ether (EGME)	109-86-4	<10	10-500	>500	-
2-Methoxyethanolacetate	110-49-6	<10	10-500	>500	-
2-(2-Methoxyethoxy) ethanol	111-77-3	<10	10-500	>500	-

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4-Methoxyphenol	150-76-5	<250	250-1000	>1000	-
1- <i>p</i> -Methoxyphenyl-1-penten-3-one	104-27-8	<250	250-1000	>1000	-
4- <i>p</i> -Methoxyphenyl-3-butene-2-one	943-88-4	<250	250-1000	>1000	-
2-Methoxypropanol	1589-47-5	<10	10-500	>500	-
2-Methoxypropanol acetate	70657-70-4	<10	10-500	>500	-
Methyl butyl ketone	591-78-6	<10	10-500	>500	-
Methyl chloride	74-87-3	<10	10-500	>500	-
Methyl ethyl ketone	78-93-3	<10	10-500	-	>500
Methyl isobutyl ketone	108-10-1	<10	10-500	-	>500
Methyl isocyanate	624-83-9	<10	10-500	>500	-
Methyl paraben	99-76-3	<10	10-500	>500	-
Methyl trans-2-butenolate	623-43-8	<250	250-1000	>1000	-
5-Methyl-2,3-hexanedione	13706-86-0	<250	250-1000	>1000	-
3-Methyl-4-(2,6,6-trimethyl-2-cyclohexen-1-yl)-3-buten-2-one	127-51-5	<250	250-1000	>1000	-
<i>N</i> -Methylacetamide	79-16-3	<10	10-500	>500	-
Methylacrylate	96-33-3	<250	250-1000	>1000	-
<i>N</i> -Methylaniline	100-61-8	<2000	2000-50000	>50000	-
2-Methylaziridine (Propylenimine)	75-55-8	<10	10-500	>500	-
7-Methylcoumarin	2445-83-2	<250	250-1000	>1000	-
6-Methylcoumarin	92-48-8	<250	250-1000	>1000	-
Methylene chloride	75-09-2	<10	10-500	>500	-
Methylmethacrylate	80-62-6	<250	250-1000	>1000	-
1-Methylnaphthalene	90-12-0	<250	250-1000	>1000	-
2-Methylnaphthalene	91-57-6	<250	250-1000	>1000	-
<i>N</i> -Methylolacrylamide	924-42-5	<10	10-500	>500	-
<i>N</i> -Methylpyrrolidone (NMP)	872-50-4	<10	10-500	-	>500
Mono- <i>iso</i> -octylphosphate	26403-12-3	<250	250-1000	>1000	-
Naphthalene	91-20-3	<10	10-500	>500	-
1-Nitropropane	108-03-2	<2000	2000-50000	>50000	-
2-Nitropropane	79-46-9	<10	10-500	>500	-
4-Nitroanisole (Para-Nitroanisole)	100-17-4	<10	10-500	>500	-
Octabromodiphenyl ether (OctaBDE)	32536-52-0	<10	10-500	>500	-
Pentabromodiphenyl ether (PentaBDE)	32534-81-9	<10	10-500	>500	-

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Pentachloroethane	76-01-7	≤10	-	>10	-
2-Pentylidene-cyclohexanone	25677-40-1	<250	250-1000	>1000	-
Phenol	108-95-2	<500	500-1000	>1000	-
2-Phenoxyethanol	122-99-6	<250	250-1000	-	>1000
Phenyl dimethyl propanol	3835-64-1	<250	250-1000	-	>1000
4-Phenyl-3-buten-2-one	122-57-6	<250	250-1000	>1000	-
4-Phenylcyclohexene	4994-16-5	<10	10-500	>500	-
<i>p</i> -Phenylene diamine and its salts	106-50-3	<10	10-500	>500	-
<i>o</i> -Phenylene diamine and its salts	95-54-5	<10	10-500	>500	-
Phosphonates, e.g. Nitrilotri(methylphosphonic acid) Ethylenebis(nitrilodimethylene)tetraphosphonic acid Diethylenetriaminepenta(methylene-phosphonic acid) 1-Hydroxyethylidenediphosphonic acid	list not exhaustive 6419-19-8, 1429-50-1, 15827-60-8, 2809-21-4	<10	10-500	-	>500
Phosphoric acid, 2-Ethylhexyl ester	12645-31-7	<250	250-1000	>1000	-
Phthalic anhydride	85-44-9	<10	10-500	-	>500
Propyl paraben	94-13-3	<10	10-500	>500	-
1,2-Propylene glycol	57-55-6	<2000	2000-50000	-	>50000
Propyleneoxide	75-56-9	<10	10-500	>500	-
Quinoline	91-22-5	<500	500-1000	>1000	-
SAN Trimer 2-[1-(4-Cyano-1,2,3,4-tetrahydronaphthyl)]propanenitrile (isomers)	THNA: 57964-39-3; Cis-R-THNA: 142759-38-4; Trans-R-THNA: 142759-37-3; Cis-S-THNA: 142759-39-5; Trans-S-THNA: 142759-40-8; THNP: 57964-40-6; Cis-THNP: 142681-91-2; Trans-THNP: 142681-92-3	<10	10-500	-	>500
Styrene	100-42-5	<10	10-500	-	>500
Tetraboron disodium heptaoxide, hydrate	12267-73-1	<10	10-500	>500	-
Tetrabrombisphenol A (TBBPA)	79-94-7	<10	10-500	>500	-
Tetrachloroethane (isomers)	630-20-6, 79-34-5	<10	10-500	>500	-
Tetrachloroethylene (PERC)	127-18-4	<10	10-500	>500	-
Tetrachloromethane (Carbon tetrachloride)	56-23-5	<10	10-500	>500	-
Tetraethylene glycol	112-60-7	<2000	2000-50000	-	>50000

		CHEM-IQ SM CATEGORY CONCENTRATION THRESHOLDS			
Substance Name	CAS No.	Preferred (mg/kg)	Allowed (mg/kg)	Prohibited / phase out (mg/kg)	Requiring due diligence* (mg/kg)
Tetrafluorethene	116-14-3	<10	10-500	>500	-
Tetrahydrofuran	109-99-9	<10	10-500	>500	-
2,2,4,4-Tetrahydroxybenzophenone	131-55-5	<10	10-500	>500	-
2-(Thiocyanatomethylthio)benzothiazole (TCMBT)	21564-17-0	<250	250-1000	-	>1000
Thiourea	62-56-6	<50	50-500	>500	-
Toluene	108-88-3	<10	10-500	-	>500
Tricresyl phosphate (TCP)	1330-78-5	<10	10-500	>500	-
Tri(2-ethylhexyl) phosphate	78-42-2	<250	250-1000	-	>1000
Trichloroethylene (TCE)	79-01-6	<10	10-500	>500	-
Trichloroethane (isomers)	71-55-6, 79-00-5	<10	10-500	>500	-
Trichloromethane (Chloroform)	67-66-3	<10	10-500	>500	-
1,2,3-Trichloropropane	96-18-4	<10	10-500	>500	-
Triethylamine	121-44-8	<2000	2000-50000	-	>50000
Triethylene glycol	112-27-6	<2000	2000-50000	-	>50000
Tri- <i>iso</i> -butylphosphate	126-71-6	<250	250-1000	-	>1000
Tri- <i>n</i> -butylphosphate	126-73-8	<10	10-500	>500	-
3,6,10-Trimethyl-3.5,9-undecatrien-2-one (<i>beta</i> -Ionone)	1117-41-5	<250	250-1000	>1000	-
Trimethylamine	75-50-3	<2000	2000-50000	>50000	-
Trimethylphosphate	512-56-1	<10	10-500	>500	-
Triphenylphosphate	115-86-6	<10	10-500	>500	-
Tris(1-aziridinyl)-phosphine oxide (TEPA)	545-55-1	≤10	-	>10	-
Tris(2,3-dibromopropyl) phosphate (TRIS)	126-72-7	≤10	-	>10	-
Tris(1-chloro-2-propyl) phosphate (TCPP)	13674-84-5	<10	10-500	>500	-
Tris(1,3-dichloro-isopropyl) phosphate (TDCP)	13674-87-8	<10	10-500	>500	-
Tris(2-chloroethyl) phosphate (TCEP)	115-96-8	<10	10-500	>500	-
Tris(nonylphenyl) phosphite (TNPP)	26523-78-4	<10	10-500	>500	-
Vinyl chloride	75-01-4	<10	10-500	>500	-
<i>N</i> -Vinyl-2-pyrrolidone	88-12-0	<10	10-500	>500	-
Vinyl acetate	108-05-4	<10	10-3000	>3000	-
4-Vinylcyclohexene	100-40-3	<10	10-500	>500	-
Xylene (<i>m</i> -, <i>o</i> -, <i>p</i> -Xylene)	1330-20-7 (isomer mix) 95-47-6 (<i>o</i>) 108-38-3 (<i>m</i>) 106-42-3 (<i>p</i>)	<10	10-500	-	>500

SPECIAL LIMITS

ALKYLPHENOL ETHOXYLATES					
Substance Name	CAS No.	Preferred (mg/kg)	Allowed (mg/kg)	Prohibited / phase out (mg/kg)	Requiring due diligence* (mg/kg)
Nonylphenol ethoxylates (NPEO)	Various including 9016-45-9 26027-38-3 37205-87-1 68412-54-4 127087-87-0	<100	100-1000	>1000	-
Octylphenol ethoxylates (OPEO)	Various, including 68987-90-6 9036-19-5 9002-93-1	<100	100-1000	>1000	-

ALKYLPHENOLS					
Substance Name	CAS No.	Preferred (mg/kg)	Allowed (mg/kg)	Prohibited / phase out (mg/kg)	Requiring due diligence* (mg/kg)
Nonylphenols (NP), sum of: Nonylphenol (mixed isomers) 4-Nonylphenol 4-Nonylphenol (branched, industrial) iso-Nonylphenol	Various including 25154-52-3 104-40-5 84852-15-3 11066-49-2	<10	10-100	>100	-
Octylphenols (OP), sum of Octylphenol (mixed isomers) 4-tert-Octylphenol 4-Octylphenol 4-tert-Octylphenol	Various, including 27193-28-2 140-66-9 1806-26-4 85771-77-3	<10	10-100	>100	-

FORMALDEHYDE					
Substance Name	CAS No.	Preferred (mg/kg)	Allowed (mg/kg)	Prohibited / phase out (mg/kg)	Requiring due diligence* (mg/kg)
Formaldehyde ¹	50-00-0	<500	500-1000	>2000	1000-2000

¹⁾ Test only needed for formaldehyde-based chemicals like urea-, melamine-, phenol resins and reactive polymers. These typically contain formaldehyde indicators like methanol, hexamethylene tetramine, phenol, urea, imidazolidones, melamines.

AROMATIC AMINES					
Substance Name	CAS No.	Preferred (mg/kg)	Allowed (mg/kg)	Prohibited / phase out (mg/kg)	Requiring due diligence* (mg/kg)
2-Amino-4-nitrotoluene	99-55-8	<1 (dyestuff) <10 (non-dyestuff)	1-10 (dyestuff) 10-500 (non-dyestuff)	>10 (dyestuff) >500 (non-dyestuff)	-
4-Aminoazobenzene	60-09-3	<1 (dyestuff) <10 (non-dyestuff)	1-10 (dyestuff) 10-500 (non-dyestuff)	>10 (dyestuff) >500 (non-dyestuff)	-
2-Aminoazotoluene	97-56-3	<1 (dyestuff) <10 (non-dyestuff)	1-10 (dyestuff) 10-500 (non-dyestuff)	>10 (dyestuff) >500 (non-dyestuff)	-
4-Aminodiphenyl	92-67-1	<1 (dyestuff) <10 (non-dyestuff)	1-10 (dyestuff) 10-500 (non-dyestuff)	>10 (dyestuff) >500 (non-dyestuff)	-
2-Aminotoluene (<i>o</i> -Toluidine)	95-53-4	<1 (dyestuff) <10 (non-dyestuff)	1-10 (dyestuff) 10-500 (non-dyestuff)	>10 (dyestuff) >500 (non-dyestuff)	-
2-Anisidine	90-04-0	<1 (dyestuff) <10 (non-dyestuff)	1-10 (dyestuff) 10-500 (non-dyestuff)	>10 (dyestuff) >500 (non-dyestuff)	-
Benzidine	92-87-5	<1 (dyestuff) <10 (non-dyestuff)	1-10 (dyestuff) 10-500 (non-dyestuff)	>10 (dyestuff) >500 (non-dyestuff)	-
4-Chloroaniline	106-47-8	<1 (dyestuff) <10 (non-dyestuff)	1-10 (dyestuff) 10-500 (non-dyestuff)	>10 (dyestuff) >500 (non-dyestuff)	-
4-Chloro- <i>o</i> -toluidine	95-69-2	<1 (dyestuff) <10 (non-dyestuff)	1-10 (dyestuff) 10-500 (non-dyestuff)	>10 (dyestuff) >500 (non-dyestuff)	-
4-Cresidine (6-Methoxy- <i>m</i> -toluidine)	120-71-8	<1 (dyestuff) <10 (non-dyestuff)	1-10 (dyestuff) 10-500 (non-dyestuff)	>10 (dyestuff) >500 (non-dyestuff)	-
2,4-Diaminoanisole	615-05-4	<1 (dyestuff) <10 (non-dyestuff)	1-10 (dyestuff) 10-500 (non-dyestuff)	>10 (dyestuff) >500 (non-dyestuff)	-
4,4'-Diaminodiphenylmethane (MDA)	101-77-9	<1 (dyestuff) <10 (non-dyestuff)	1-10 (dyestuff) 10-500 (non-dyestuff)	>10 (dyestuff) >500 (non-dyestuff)	-
2,4-Diaminotoluene	95-80-7	<1 (dyestuff) <10 (non-dyestuff)	1-10 (dyestuff) 10-500 (non-dyestuff)	>10 (dyestuff) >500 (non-dyestuff)	-
3,3'-Dichlorobenzidine	91-94-1	<1 (dyestuff) <10 (non-dyestuff)	1-10 (dyestuff) 10-500 (non-dyestuff)	>10 (dyestuff) >500 (non-dyestuff)	-
3,3'-Dimethoxybenzidine (<i>o</i> -Dianisidine)	119-90-4	<1 (dyestuff) <10 (non-dyestuff)	1-10 (dyestuff) 10-500 (non-dyestuff)	>10 (dyestuff) >500 (non-dyestuff)	-
3,3'-Dimethyl-4,4'-diamino-diphenylmethane	838-88-0	<1 (dyestuff) <10 (non-dyestuff)	1-10 (dyestuff) 10-500 (non-dyestuff)	>10 (dyestuff) >500 (non-dyestuff)	-
3,3'-Dimethylbenzidine (<i>o</i> -Tolidine)	119-93-7	<1 (dyestuff) <10 (non-dyestuff)	1-10 (dyestuff) 10-500 (non-dyestuff)	>10 (dyestuff) >500 (non-dyestuff)	-
4,4'-Methylene-bis-(2-chloroaniline) (MOCA)	101-14-4	<1 (dyestuff) <10 (non-dyestuff)	1-10 (dyestuff) 10-500 (non-dyestuff)	>10 (dyestuff) >500 (non-dyestuff)	-

AROMATIC AMINES					
Substance Name	CAS No.	Preferred (mg/kg)	Allowed (mg/kg)	Prohibited / phase out (mg/kg)	Requiring due diligence* (mg/kg)
2-Naphthylamine	91-59-8	<1 (dyestuff) <10 (non-dyestuff)	1-10 (dyestuff) 10-500 (non-dyestuff)	>10 (dyestuff) >500 (non-dyestuff)	-
4,4'-Oxydianiline	101-80-4	<1 (dyestuff) <10 (non-dyestuff)	1-10 (dyestuff) 10-500 (non-dyestuff)	>10 (dyestuff) >500 (non-dyestuff)	-
4,4'-Thiodianiline	139-65-1	<1 (dyestuff) <10 (non-dyestuff)	1-10 (dyestuff) 10-500 (non-dyestuff)	>10 (dyestuff) >500 (non-dyestuff)	-
2,4,5-Trimethylaniline	137-17-7	<1 (dyestuff) <10 (non-dyestuff)	1-10 (dyestuff) 10-500 (non-dyestuff)	>10 (dyestuff) >500 (non-dyestuff)	-
2,6-Xylidine	87-62-7	<1 (dyestuff) <10 (non-dyestuff)	1-10 (dyestuff) 10-500 (non-dyestuff)	>10 (dyestuff) >500 (non-dyestuff)	-
2,4-Xylidine	95-68-1	<1 (dyestuff) <10 (non-dyestuff)	1-10 (dyestuff) 10-500 (non-dyestuff)	>10 (dyestuff) >500 (non-dyestuff)	-

DISPERSE DYES					
Substance Name	CAS No.	Preferred (mg/kg)	Allowed (mg/kg)	Prohibited / phase out (mg/kg)	Requiring due diligence* (mg/kg)
Disperse Blue 1	2475-45-8	<250	250-1000	>1000	-
Disperse Blue 102	12222-97-8	<250	250-1000	>1000	-
Disperse Blue 106	12223-01-7	<250	250-1000	>1000	-
Disperse Blue 124	61951-51-7	<250	250-1000	>1000	-
Disperse Blue 26	3860-63-7	<250	250-1000	>1000	-
Disperse Blue 3	2475-46-9	<250	250-1000	>1000	-
Disperse Blue 35	12222-75-2, 56524-77-7	<250	250-1000	>1000	-
Disperse Blue 7	3179-90-6	<250	250-1000	>1000	-
Disperse Brown 1	23355-64-8	<250	250-1000	>1000	-
Disperse Orange 1	2581-69-3	<250	250-1000	>1000	-
Disperse Orange 11	82-28-0	<250	250-1000	>1000	-
Disperse Orange 149	85136-74-9	<250	250-1000	>1000	-
Disperse Orange 3	730-40-5	<250	250-1000	>1000	-
Disperse Orange 37/59/76	12223-33-5, 13301-61-6	<250	250-1000	>1000	-
Disperse Red 1	2872-52-8	<250	250-1000	>1000	-
Disperse Red 11	2872-48-2	<250	250-1000	>1000	-
Disperse Red 151	61968-47-6	<250	250-1000	>1000	-
Disperse Red 17	3179-89-3	<250	250-1000	>1000	-

DISPERSE DYES					
Substance Name	CAS No.	Preferred (mg/kg)	Allowed (mg/kg)	Prohibited / phase out (mg/kg)	Requiring due diligence* (mg/kg)
Disperse Yellow 1	119-15-3	<250	250-1000	>1000	-
Disperse Yellow 23	6250-23-3	<250	250-1000	>1000	-
Disperse Yellow 3	2832-40-8	<250	250-1000	>1000	-
Disperse Yellow 39	12236-29-2	<250	250-1000	>1000	-
Disperse Yellow 49	54824-37-2	<250	250-1000	>1000	-
Disperse Yellow 56	54077-16-6	<250	250-1000	>1000	-
Disperse Yellow 7	67701-38-6	<250	250-1000	>1000	-
Disperse Yellow 9	6373-73-5	<250	250-1000	>1000	-

DIISOCYANATES					
Substance Name	CAS No.	Preferred (mg/kg)	Allowed (mg/kg)	Prohibited / phase out (mg/kg)	Requiring due diligence* (mg/kg)
Diphenylmethane diisocyanate (MDI)	101-68-8	<10	10-500	-	>500
Hexamethylene diisocyanate (HDI)	822-06-0	<250	250-1000	-	>1000
Isophorone diisocyanate (IPDI)	4098-71-9	<250	250-1000	-	>1000
Naphthylene-1,5-diisocyanate (1,5-NDI)	3173-72-6	<10	10-500	-	>500
Tetramethylxylene diisocyanate (TMXDI)	2778-42-9	<250	250-1000	-	>1000
Toluene diisocyanate (2,4-TDI, 2,6-TDI)	584-84-9 91-08-7	<10 (sum)	10-500 (sum)	-	>500 (sum)

BIOCIDES					
Substance Name	CAS No.	Preferred (mg/kg)	Allowed (mg/kg)	Prohibited / phase out (mg/kg)	Requiring due diligence* (mg/kg)
Permethrin	52645-53-1	<10	10-500	>500 (non-biocide)	>500 (biocide)
1,2-Benzisothiazol-3(2H)-one (BIT)	2634-33-5	<250	250-1000	>1000 (non-biocide)	>1000 (biocide)
5-Chloro-2-methyl-4-isothiazolin-3-one (CMIT)	26172-55-4	<10	10-15	>15 (non-biocide)	>15 (biocide / in-can preservative)
Dichlorooctylisothiazolinone (DCOIT)	64359-81-5	<250	250-1000	>1000 (non-biocide)	>1000 (biocide)
2-Methyl-4-isothiazolin-3-one (MIT)	2682-20-4	<250	250-1000	>1000 (non-biocide)	>1000 (biocide)
2-n-Octyl-4-isothiazolin-3-one (OIT)	26530-20-1	<250	250-1000	>1000 (non-biocide)	>1000 (biocide)
o-Phenylphenol (OPP)	90-43-7	<10	10-500	>500	-

CHLORINATED AROMATICS					
Substance Name	CAS No.	Preferred (mg/kg)	Allowed (mg/kg)	Prohibited / phase out (mg/kg)	Require due diligence in handling and process control* (mg/kg)
Chlorobenzene	108-90-7	≤10 (sum)	10-500 (sum)	>500 (sum)	-
Dichlorobenzene	95-50-1 541-73-1 106-46-7				
Trichlorobenzene	108-70-3, 120-82-1, 87-61-6				
Tetrachlorobenzene	634-66-2, 634-90-2, 95-94-3				
Pentachlorobenzene	608-93-5				
Hexachlorobenzene	118-74-1				
Chlorotoluene	106-43-4 108-41-8 95-49-8				
Dichlorotoluene	118-69-4 19398-61-9 25186-47-4 32768-54-0 95-73-8 95-75-0				
Trichlorotoluene	2077-46-5, 23749-65-7, 6639-30-1, 7359-72-0				
Tetrachlorotoluene	1006-32-2, 29733-70-8				
Pentachlorotoluene	877-11-2				

CHLOROPHENOLS					
Substance Name	CAS No.	Preferred (mg/kg)	Allowed (mg/kg)	Prohibited / phase out (mg/kg)	Require due diligence in handling and process control* (mg/kg)
Monochlorophenol (MCP), its salts and compounds (2-MCP, 3-MCP, 4-MCP)	95-57-8 108-43-0 106-48-9	≤10 (sum)	-	>10 (sum)	-
Dichlorophenol (DCP), its salts and compounds (2,3-DCP, 2,4-DCP, 2,5-DCP, 2,6-DCP, 3,4-DCP, 3,5-DCP)	576-24-9 120-83-2 583-78-8 87-65-0 95-77-2 591-35-5				
Trichlorophenol (TriCP), its salts and compounds (2,3,4-TriCP, 2,3,5-TriCP, 2,3,6-TriCP, 2,4,5-TriCP, 2,4,6-TriCP, 3,4,5-TriCP)	15950-66-0 933-78-8 933-75-5 95-95-4 88-06-2 609-19-8				
Tetrachlorophenol (TeCP), its salts and compounds (2,3,5,6-TeCP; 2,3,4,6-TeCP; 2,3,4,5-TeCP)	25167-83-3, 4901-51-3, 58-90-2, 935-95-5				
Pentachlorophenol (PCP), its salts and compounds	87-86-5				

POLYCYCLIC AROMATIC HYDROCARBONS (PAH)					
Substance Name	CAS No.	Preferred (mg/kg)	Allowed (mg/kg)	Prohibited / phase out (mg/kg)	Require due diligence in handling and process control* (mg/kg)
Benzo[a]pyrene	50-32-8	≤10 (sum)	-	>10 (sum)	-
Benzo[e]pyrene	192-97-2				
Benzo[a]anthracene	56-55-3				
Chrysene	218-01-9				
Benzo[b]fluoranthene	205-99-2				
Benzo[j]fluoranthene	205-82-3				
Benzo[k]fluoranthene	207-08-9				
Benzo[ghi]perylene,	191-24-2				
Dibenzo[a,h]anthracene	53-70-3				
Indeno[1,2,3-cd]pyrene	193-39-5				
Acenaphthylene	208-96-8	≤100 (sum)	-	>100 (sum)	-
Acenaphthene	83-32-9				
Anthracene	120-12-7				
Fluoranthene	206-44-0				
Fluorene	86-73-7				
Phenanthrene	85-01-8				
Pyrene	129-00-0				

FLUOROCEMICALS					
Substance Name	CAS No.	Preferred (mg/kg)	Allowed (mg/kg)	Prohibited / phase out (mg/kg)	Require due diligence in handling and process control* (mg/kg)
Perfluorooctane sulphonate (PFOS) and PFOS metallic salt, halogenide, amide and other derivatives	2795-39-3, 1763-23-1, 56773-42-3	<0.05	0.05-0.5	>0.5	-
Perfluorooctanoic acid (PFOA) and its derivatives	335-67-1, 3825-26-1 (NH4+)	<0.05	0.05-0.5	>0.5	-
RF-telomers ≤C6 (sum of RF-telomer alcohols, alkenes, iodides and acrylates)	various including 25291-17-2, 647-42-7	<50	50-500	-	>500
RF-telomers ≥C8 (sum of RF-telomer alcohols, alkenes, iodides and acrylates)	various including 21652-58-4, 678-39-7	<2	2-10	>10	-

PHTHALATES					
Substance Name	CAS No.	Preferred (mg/kg)	Allowed (mg/kg)	Prohibited / phase out (mg/kg)	Require due diligence in handling and process control* (mg/kg)
1,2-Benzenedicarboxylic acid, dipentylester, branched & linear	84777-06-0	<10 (sum)	10-500 (sum)	>500 (sum)	-
Butyl benzyl phthalate (BBP)	85-68-7				
Dibutyl phthalate (DBP)	84-74-2				
Di-C6-8-branched, C7 rich Diisohexylphthalate (DIHP)	71888-89-6				
Di-C7-11-branched and linear (di-heptyl, nonyl, undecyl phthalate (DHNUPI))	68515-42-4				
Dicyclohexyl phthalate (DCHP)	84-61-7				
Di(ethylhexyl) phthalate (DEHP)	117-81-7				
Diethyl phthalate (DEP)	84-66-2				
Di-iso-butyl phthalate (DIBP)	84-69-5				
Di-iso-decyl phthalate (DIDP)	26761-40-0 68515-49-1				
Di-iso-pentyl phthalate (DIPP)	605-50-5				
Di-iso-nonyl phthalate (DINP)	28553-12-0 68515-48-0				
Di(2-methoxyethyl) phthalate (DMEP)	117-82-8				
Dimethyl phthalate (DMP)	131-11-3				
Di-n-hexyl phthalate (DnHP)	84-75-3				
Di-n-octyl phthalate (DNOP)	117-84-0				
Dipentyl phthalate (DPP)	131-18-0				
Di-propylheptylphthalate (DPHP)	53306-54-0				
N-Pentyl-isopentylphthalate (NPIPP)	776297-69-9				
Other miscellaneous phthalates	Various				

CYCLIC SILOXANES					
Substance Name	CAS No.	Preferred (mg/kg)	Allowed (mg/kg)	Prohibited / phase out (mg/kg)	Require due diligence in handling and process control* (mg/kg)
Octamethylcyclotetrasiloxane (D4)	556-67-2	<1000 (sum)	1000-2000 (sum)	>2000 (sum)	-
Decamethylcyclopentasiloxane (D5)	541-02-6				
Dodecamethylcyclohexasiloxane (D6)	540-97-6				

POLYBROMINATED BIPHENYLS (PBB)					
Substance Name	CAS No.	Preferred (mg/kg)	Allowed (mg/kg)	Prohibited / phase out (mg/kg)	Require due diligence in handling and process control* (mg/kg)
Monobromobiphenyl	Various	≤10 (sum)	-	>10 (sum)	-
Dibromobiphenyl	Various				
Tribromobiphenyl	Various				
Tetrabromobiphenyl	Various				
Pentabromobiphenyl	Various				
Hexabromobiphenyl	Various				
Heptabromobiphenyl	Various				
Octabromobiphenyl	Various				
Nonabromobiphenyl	Various				
Decabromobiphenyl	13654-09-6				

POLYCHLORINATED BIPHENYLS (PCB)					
Substance Name	CAS No.	Preferred (mg/kg)	Allowed (mg/kg)	Prohibited / phase out (mg/kg)	Require due diligence in handling and process control* (mg/kg)
Monochlorobiphenyl	Various	≤10 (sum)	-	>10 (sum)	-
Dichlorobiphenyl	Various				
Trchlorobiphenyl	Various				
Tetrachlorobiphenyl	Various				
Pentachlorobiphenyl	Various				
Hexachlorobiphenyl	Various				
Heptachlorobiphenyl	Various				
Octachlorobiphenyl	Various				
Nonachlorobiphenyl	Various				
Decachlorobiphenyl	2051-24-3				

ORGANOTINS					
Substance Name	CAS No.	Preferred (mg/kg)	Allowed (mg/kg)	Prohibited / phase out (mg/kg)	Require due diligence in handling and process control* (mg/kg)
Organotin compounds ²	Various	<10	10-100	>100	-

²⁾ With total tin as indicator; in comparison with MSDS for PU, PVC, PFC, silicone-based chemicals

HEAVY METALS ³					
Substance Name	CAS No.	Preferred (mg/kg)	Allowed (mg/kg)	Prohibited / phase out (mg/kg)	Require due diligence in handling and process control* (mg/kg)
Antimony (Sb)	7440-36-0	<25	25-100	>100	-
Arsenic (As)	7440-38-2	<25	25-100	>100	-
Cadmium (Cd)	7440-43-9	<25	25-100	>100	-
Cobalt (Co)	7440-48-4	<100	100-1000	>1000	-
Copper (Cu)	7440-50-8	<100	100-1000	>1000	-
Iron (Fe)	7439-89-6	<100	100-1000	>1000	-
Lead (Pb)	7439-92-1	<25	25-100	>100	-
Manganese (Mn)	7439-96-5	<100	100-1000	>1000	-
Mercury (Hg)	7439-97-6	<25	25-100	>100	-
Nickel (Ni)	7440-02-0	<100	100-1000	>1000	-
Selenium (Se)	7782-49-2	<25	25-100	>100	-
Silver (Ag)	7440-22-4	<100	100-1000	>1000	-
Tin (Sn)	7440-31-5	<100	100-1000	>1000	-
Zinc (Zn)	7440-66-6	<100	100-1000	>1000	-

³) Heavy metals are not screened in CHEM-IQSM Program. However, suppliers are still required to make sure the use of their chemicals on VF products and/or materials, are compliance with the metal restrictions as specified in the latest VF Corporation Restricted Substance List (RSL).