

**Levi Strauss & Co.  
("LS&CO.")**



**Restricted Substances List  
("RSL")**

Concerning  
Materials, Metal Parts, Products and Things of Value  
Supplied for

**LS&CO.  
Textile and Leather  
Apparel and Accessories**

Version: July 2006  
Applicable: Fall 2007 Season products and thereafter

**Note** that substances described herein are listed for a variety of regulatory, scientific and/or other reasons. The presence of a substance on this list should not be interpreted as suggesting that human exposure to that substance may or will cause any adverse health effect.

**Table 1: Substances commonly found in apparel**

Restrictions on substances listed in Table 1 are of primary interest to LS&CO. LS&CO. may test materials, metal parts, products and things of value for these substances. LS&CO. suppliers and other contractors declare their compliance with these restrictions.

Chemical Group and Substance	CAS Number	Limit Value Final Product (mg/kg) <sup>1</sup>	Test Method <sup>2</sup>
<b>DYES</b>			
Amines from Azo dyes, Disperse dyes, and Other dyes			
<b>Azo Dyes<sup>3</sup></b> ...that can form any of the following amines:			
4-Amino azobenzene <sup>4</sup>	60-09-3		
<i>o</i> -Aminoazotoluene	97-56-3		
4-Aminodiphenyl	92-67-1		
2-Amino-4-nitrotoluene	99-55-8		
<i>o</i> -Anisidine	90-04-0		
Benzidine	92-87-5		
<i>p</i> -Chloroaniline	106-47-8		
4-Chloro- <i>o</i> -toluidine	95-69-2		
<i>p</i> -Cresidine	120-71-8		
2,4-Diaminoanisole	615-05-4		
4,4'-Diamino-diphenylmethane	101-77-9		European Directive 2002/61/EC
3,3'-Dichlorobenzidine	91-94-1	Not Detected	Textiles General: EN 14362-1
3,3'-Dimethoxybenzidine	119-90-4		Polyester: EN 14362-2
4-Dimethylaminoazo-benzene	60-11-7		Leather: ISO 17234
3,3'-Dimethylbenzidine	119-93-7		[DL=30]
3,3'-Dimethyl-4,4'-diamino-diphenylmethane	838-88-0		
4,4'-Methylene-bis-(2-chloraniline)	101-14-4		
2-Naphthylamine	91-59-8		
4,4'-Oxydianiline	101-80-4		
4,4'-Thiodianiline	139-65-1		
2,4-Toluenediamine	95-80-7		
<i>o</i> -Toluidine	95-53-4		
2,4,5-Trimethylaniline	137-17-7		
2,4-Xylidine	95-68-1		
2,6-Xylidine	87-62-7		

<sup>1</sup> Any reference to the term “Usage Ban” indicates that the substance for which there is a usage ban is prohibited from use but that an acceptable trace amount is allowed up to the designated trace value (“TR”). Any reference to the term “Not Detected” indicates that the substance must not be detected in the final product.

<sup>2</sup> The test method indicated shall be used by the LS&CO.-approved laboratory to determine compliance with the RSL. The method’s Detection Limit must be less than or equal to the restricted concentration. A Detection Limit (“DL”) is indicated when a substance is restricted to a Not Detected amount.

<sup>3</sup> See Appendix 1 for a partial list of azo dyes which, through reductive cleavage, may form restricted substances (amines).

<sup>4</sup> The LS&CO.-approved laboratory must use a supplemental test method to confirm the presence of this amine.

<b>Disperse Dyes</b>					
Disperse Blue 1	2475-45-8				
Disperse Blue 3	2475-46-9				
Disperse Blue 7	3179-90-6				
Disperse Blue 26	3860-63-7				
Disperse Blue 35	12222-75-2				
Disperse Blue 102	12222-97-8				
Disperse Blue 106	12223-01-7				
Disperse Blue 124	61951-51-7				
Disperse Brown 1	23355-64-8				
Disperse Orange 1	2581-69-3				
Disperse Orange 3	730-40-5				
Disperse Orange 11	82-28-0				
Disperse Orange 37/59/76	12223-33-5				
Disperse Red 1	2872-52-8	Not Detected	DIN 54231 <sup>5</sup> [DL=5] Units in mg/l		
Disperse Red 11	2872-48-2				
Disperse Red 17	3179-89-3				
Disperse Yellow 1	119-15-3				
Disperse Yellow 3	2832-40-8				
Disperse Yellow 9	6373-73-5				
Disperse Yellow 39	12236-29-2				
Disperse Yellow 49	54824-37-2				
<b>Other Dyes</b>					
Acid Red 26	3761-53-3				
Basic Red 9	569-61-9				
Basic Violet 14	632-99-5				
Direct Black 38	1937-37-7				
Direct Blue 6	2602-46-2				
Direct Red 28	573-58-0				
Navy Blue <sup>6</sup>	118685-33-9				
<b>BIOCIDES<sup>7</sup></b>					
2-Chloracetamide	79-07-2				
	26530-20-1	50	Solvent extraction / GC-MS		
Sensitizing Isothiazolinones	26172-55-4				
	2682-20-4				

<sup>5</sup> The result for method DIN 54231 is reported in milligrams of dye per liter of extract.

<sup>6</sup> Navy Blue dye is the mixture of disodium (6-(4-anisidino)-3-sulfonato-2-(3,5-dinitro-2-oxidophenylazo)-1-naphtholato)(1-(5-chloro-2-oxidophenylazo)-2-naphtholato)chromate(1-) and trisodium bis(6-(4-anisidino)-3-sulfonato-2-(3,5-dinitro-2-oxidophenylazo)-1-naphtholato)chromate(1-), Color Index number 611-070-00-2, EC number 405-665-4.

<sup>7</sup> Any biocide use requires LS&CO.'s prior approval.

<b>CHLORINATED AROMATICS</b>			
Chlorinated benzenes <sup>8</sup>	Various CAS numbers	Usage Ban (TR=4)	Solvent extraction / GC-MS
Chlorinated toluenes <sup>9</sup>	Various CAS numbers		
<b>FLAME RETARDANTS<sup>10</sup></b>			
Chlorinated paraffins <sup>11</sup>	63449-39-8	Usage Ban (TR=1)	Solvent extraction / GC-MS
Polybrominated biphenyls (PBBs)	59536-65-1	Usage Ban (TR=1)	
Penta-bromodiphenyl ether (pentaBDE)	32534-81-9	Usage Ban (TR=50)	
Octa-bromodiphenyl ether (octaBDE)	32536-52-0	Usage Ban (TR=50)	
Tri- <i>o</i> -cresyl phosphate	78-30-8	Usage Ban (TR=5)	
Tris (2,3-dibromopropyl) phosphate (TRIS)	126-72-7	Usage Ban (TR=5)	
Bis (2,3-dibromopropyl) phosphate	5412-25-9	Usage Ban (TR=5)	
Tris (1-aziridiny)l-phosphine oxide (TEPA)	5455-55-1	Usage Ban (TR=5)	KOH digestion / headspace analysis of ethyleneimine fragment by GC-MS
<b>ISOCYANATES</b>			
Diphenylmethane diisocyanate (MDI)	101-68-8	Free: 1 Blocked: 50	<u>Analysis of free isocyanates:</u> Solvent extraction / HPLC
Hexamethylene diisocyanate (HDI)	822-06-0	Free: 1 Blocked: 50	
Isophorone diisocyanate (IPDI) <sup>12</sup>	4098-71-9	Free: 1 Blocked: 100	<u>Analysis of releasable (blocked) isocyanates:</u> Solvent extraction / GC-MS with injector block temperature at 300°C.
Tetramethylxylene diisocyanate (TMXDI)	2778-42-9	Free: 1 Blocked: 100	
Toluene diisocyanate (TDI) <sup>13</sup>	584-84-9 91-08-7	Free: 1 Blocked: 15	
<b>MONOMERS</b>			
Acrylamide	79-06-1	100	Solvent extraction / GC-MS
Acrylonitrile	107-13-1	1	Multiple headspace / GC-MS
Butyl acrylate	141-32-2	50	Solvent extraction / GC-MS
Butyl methacrylate	97-88-1	50	Solvent extraction / GC-MS
Ethyl acrylate	140-88-5	10	Solvent extraction / GC-MS
Ethyl methacrylate	97-63-2	50	Solvent extraction / GC-MS
Methyl methacrylate	80-62-6	50	Solvent extraction / GC-MS
Vinylchloride	75-01-4	Usage Ban (TR=1)	Multiple headspace / GC-MS

<sup>8</sup> Chlorinated benzenes include monochlorobenzene (108-90-7), all isomers of di-, tri-, and tetra-chlorobenzene, pentachlorobenzene (608-93-5) and hexachlorobenzene (118-74-1).

<sup>9</sup> Chlorinated toluenes include all isomers of mono-, di-, tri-, and tetra-chlorotoluene and pentachlorotoluene (877-11-2).

<sup>10</sup> Textiles supplied to LS&CO. are to meet LS&CO.'s Class 1 Flammability ratings and manufactured without the use of flame retardants. Any Flame Retardant use requires LS&CO.'s prior approval.

<sup>11</sup> Including short chain chlorinated paraffins from C<sub>10</sub>H<sub>22-n</sub>Cl<sub>n</sub> to C<sub>30</sub>H<sub>62-n</sub>Cl<sub>n</sub>, where n=1-28, chlorine content 20% to 70%. Use LC-MS for C<sub>20</sub> to C<sub>30</sub>.

<sup>12</sup> LS&CO. does not allow the use of IPDI in materials, products or things of value intended for the U.S. market.

<sup>13</sup> TDI restriction applies to both 2,4-TDI (CAS # 584-84-9) and 2,6-TDI (CAS # 91-08-7), individually.

METALS <sup>14</sup>			
<b>Restrictions for textile substrates</b>			
Antimony (Sb)	7440-36-0	30 / 260 <sup>15</sup>	
Arsenic (As)	7440-38-2	Usage Ban (TR=0.2)	
Cadmium (Cd)	7440-43-9	Usage Ban (TR=0.1)	
Chromium (Cr) – total	7440-47-3	1	EN ISO 105-E04 / ICP-MS
Cobalt (Co)	7440-48-4	1	
Copper (Cu)	7440-50-8	25	
Lead (Pb)	7439-92-1	Usage Ban (TR=0.2)	
Mercury (Hg)	7439-97-6	Usage Ban (TR=0.02)	
Nickel (Ni)	7440-02-0	1	
<b>Restrictions for natural leather substrates</b>			
Antimony (Sb)	7440-36-0	30	EN ISO 105-E04
Arsenic (As)	7440-38-2	Not Detected	CEN TC 309 WI 065 [DL=20]
Cadmium (Cd)	7440-43-9	Usage Ban (TR=75)	CEN TC 309 WI 065
Chromium (Cr <sup>+6</sup> ) – hexavalent	18540-29-9	Not Detected	DIN 53314 [DL=3]
Cobalt (Co)	7440-48-4	1	EN ISO 105-E04
Copper (Cu)	7440-50-8	25	EN ISO 105-E0-4
Lead (Pb)	7439-92-1	Not Detected	CEN TC 309 WI 065 [DL=20]
Mercury (Hg)	7439-97-6	Usage Ban (TR=0.02)	EN ISO 105-E04
<b>Restrictions for metal parts<sup>16</sup></b>			
Antimony (Sb)	7440-36-0	60	EN 71: Part III
Cadmium (Cd)	7440-43-9	75	EN 71: Part III
Chromium (Cr) – total	7440-47-3	60	EN 71: Part III
Chromium (Cr <sup>+6</sup> ) – hexavalent	18540-29-9	Not Detected	DIN 53314 [DL=3]
Lead (Pb) <sup>17</sup>	7439-92-1	Extractable: 90 Total in surface coating: 0.06%	Extractable content: EN 71: Part III Total Content in Surface Coating: ASTM E1613/E1645
Mercury (Hg)	7439-97-6	60	EN 71: Part III
Nickel (Ni) <sup>18</sup>	7440-02-0	0.5 µg/cm <sup>2</sup> /week	CEN EN 1811 <sup>19</sup>

<sup>14</sup> Metal restrictions are separated into three categories: (1) metal restrictions for textile substrates, (2) metal restrictions for natural leather substrates, and (3) metal restrictions for metal parts.

<sup>15</sup> LS&CO.'s antimony limit for natural fibers is 30 mg/kg. For polyester fibers, LS&CO.'s antimony limit is 260 mg/kg.

<sup>16</sup> Metal parts include items such as buttons, zippers, rivets, snaps, etc.

<sup>17</sup> Metal parts must comply with LS&CO.'s extractable lead limit of 90 mg/kg (EN 71: Part III). A coated metal part must meet the extractable lead limit of 90 mg/kg (EN71:Part III) and LS&CO.'s total lead in surface coating limit of a maximum of 0.06% (ASTM E1613/E1645).

<sup>18</sup> For metallic parts used on garments, only the surface of the metallic part that has direct and prolonged skin contact must comply with the nickel limit value.

<sup>19</sup> For metallic parts without a surface coating or plating, test in accordance with method EN 1811. For metallic parts with a surface coating or plating, test in accordance with method EN 12472. The same limit value of 0.5 µg/cm<sup>2</sup>/week applies regardless of the test method used.

<b>SOLVENTS</b>			
Benzene	71-43-2	Usage Ban (TR=5)	Solvent extraction / GC-MS or LC-MS
N,N-Dimethylformamide (DMF)	68-12-2	2000	
Ethoxyethanol	110-80-5	80	
Ethoxyethanol acetate	111-15-9	80	
2-Methoxyethanol	109-86-4	80	
2-Methoxyethanol acetate	110-49-6	300	
2-Methoxypropanol	1589-47-5	1000	
2-Methoxypropanol acetate	70657-70-4	2000	
N-Methylpyrrolidone (NMP)	872-50-4	Usage Ban (TR=10)	
2-Phenoxyethanol	122-99-6	400	
<i>o</i> -Phenylphenol	90-43-7	50	
Tetrachloroethene (Perchloroethylene)	127-18-4	10	
Trichloroethylene (TCE)	79-01-6	50	
<b>AUXILIARY CHEMICALS</b>			
2-Aminoethanol	141-43-5	1000	Solvent extraction / GC-MS
Diethylenetriamine	111-40-0	50	Solvent extraction / GC-MS
Dipropylene triamine	56-18-8	50	Solvent extraction / GC-MS
Formaldehyde <sup>20</sup>	50-00-0	Kids: 20 Adults: 75 <u>Natural Leather</u> Kids: 30 Adults: 150	ISO method 14184-1
Perfluorooctane sulfonate (PFOS)	2795-39-3	Usage Ban (TR=1)	Solvent extraction / LC-MS
Perfluorooctanoic acid, ammonium salt (PFOA)	3825-26-1	Usage Ban (TR=1)	Solvent extraction / LC-MS-MS
Thiourea	62-56-6	10	Solvent extraction / GC-MS
<b>ORGANOTIN COMPOUNDS (JAPAN ONLY)<sup>21</sup></b>			
Tributyltin (TBT)	56573-85-4	Not Detected	Ethanol extraction / GC-MS <sup>22</sup> [DL=0.05]
Triphenyltin (TPhT)	668-34-8		
<b>PHTHALATES (JAPAN ONLY)<sup>23</sup></b>			
Di(ethylhexyl) phthalate (DEHP)	117-81-7	Usage Ban	Solvent extraction / LC-MS under high fragmentation
Di-iso-nonyl phthalate (DINP)	28553-12-0	[TR=1,000 mg/kg total phthalate]	

<sup>20</sup> EXCEPTION: For baby products (age 0 – 24 months) intended for the Japanese market, the formaldehyde concentration must be below an absorbancy (A-A<sub>0</sub>) limit of 0.05 using JIS L1041-1983, Method A.

<sup>21</sup> LS&CO.'s organotin restriction only applies to products intended for the Japanese market.

<sup>22</sup> When analyzing for organotin, the laboratory measures the concentration of tin from each compound. Thus, the results should be expressed in mg tin / kg.

<sup>23</sup> LS&CO.'s phthalate restriction only applies to products intended for the Japanese market. DEHP is restricted for products intended for age 0-6 years and DINP for age 0-3 years. For other markets, LS&CO. prefers that products do not contain phthalates in so far as practicable.

**Table 2: Substances NOT commonly found in apparel**

Restrictions listed in Table 2 are not commonly found in apparel products. Suppliers and contractors commit to implementing best business processes towards achieving compliance with these restrictions.

Chemical Group and Substance	CAS Number	Limit Value Final Product (mg/kg)	Test Method for Analysis of the Final Product
<b>ASBESTOS</b>			
actinolite, amosite, anthophyllite, tremolite, chrysotile, crocidolite	132207-33-1	Usage Ban	U.S. EPA/600/R-93/116
<b>DIOXINS AND FURANS</b>			
<b>Group 1:</b> 2,3,7,8-Tetrachlorodibenzo- <i>p</i> -dioxin 1,2,3,7,8-Pentachlorodibenzo- <i>p</i> -dioxin 2,3,7,8-Tetrachlorodibenzofuran 2,3,4,7,8-Pentachlorodibenzofuran	1746-01-6 40321-76-4 51207-31-9 57117-31-4	Unavoidable traces acceptable up to 1 µg/kg for Group 1	U.S. EPA Method 8290
<b>Group 2:</b> 1,2,3,4,7,8-Hexachlorodibenzo- <i>p</i> -dioxin 1,2,3,7,8,9-Hexachlorodibenzo- <i>p</i> -dioxin 1,2,3,6,7,8-Hexachlorodibenzo- <i>p</i> -dioxin 1,2,3,7,8-Pentachlorodibenzofuran 1,2,3,4,7,8-Hexachlorodibenzofuran 1,2,3,7,8,9-Hexachlorodibenzofuran 1,2,3,6,7,8-Hexachlorodibenzofuran 2,3,4,6,7,8-Hexachlorodibenzofuran	39227-28-6 19408-74-3 57653-85-7 57117-41-6 70648-26-9 72918-21-9 57117-44-9 60851-34-5	Unavoidable traces acceptable up to 5 µg/kg for sum of Groups 1 & 2	
<b>Group 3:</b> 1,2,3,4,6,7,8-Heptachlorodibenzo- <i>p</i> -dioxin 1,2,3,4,6,7,8,9-Octachlorodibenzo- <i>p</i> -dioxin 1,2,3,4,6,7,8-Heptachlorodibenzofuran 1,2,3,4,7,8,9-Heptachlorodibenzofuran 1,2,3,4,6,7,8,9-Octachlorodibenzofuran	35822-46-9 3268-87-9 67562-39-4 55673-89-7 39001-02-0	Unavoidable traces acceptable up to 100 µg/kg for sum of Groups 1, 2, and 3	
<b>Group 4:</b> 2,3,7,8-Tetrabromodibenzo- <i>p</i> -dioxin 1,2,3,7,8-Pentabromodibenzo- <i>p</i> -dioxin 2,3,7,8-Tetrabromodibenzofuran 2,3,4,7,8-Pentabromodibenzofuran	50585-41-6 109333-34-8 67933-57-7 131166-92-2	Unavoidable traces acceptable up to 1 µg/kg for Group 4	
<b>Group 5:</b> 1,2,3,4,7,8-Hexabromodibenzo- <i>p</i> -dioxin 1,2,3,7,8,9-Hexabromodibenzo- <i>p</i> -dioxin 1,2,3,6,7,8-Hexabromodibenzo- <i>p</i> -dioxin 1,2,3,7,8-Pentabromodibenzofuran	110999-44-5 110999-46-7 110999-45-6 107555-93-1	Unavoidable traces acceptable up to 5 µg/kg for sum of Groups 4 & 5	

PESTICIDES			
Aldicarb	116-06-3		
Aldrin	309-00-2		
Chlordane	57-74-9		
Chlordimeform	6164-98-3		
1,2-Dibromo-3-Chloropropane (DBCP)	96-12-8		
<i>p,p</i> -Dichlorodiphenyldichloroethane ( <i>p,p</i> -DDD)	72-54-8		
<i>o,p</i> -Dichlorodiphenyldichloroethane ( <i>o,p</i> -DDD)	53-19-0		
<i>p,p</i> -Dichlorodiphenyldichloroethylene ( <i>p,p</i> -DDE)	72-55-9		
<i>o,p</i> -Dichlorodiphenyldichloroethylene ( <i>o,p</i> -DDE)	3424-82-6		
<i>p,p</i> -Dichlorodiphenyltrichloroethane ( <i>p,p</i> -DDT)	50-29-3		
<i>o,p</i> -Dichlorodiphenyltrichloroethane ( <i>o,p</i> -DDT)	789-02-6		
2,4-Dichlorophenoxyacetic acid, its salts and compounds	97-75-7		
Dicofol	115-32-2		
Dieldrin	60-57-1		
Endosulfan (Thiosulfan)	115-29-7		
Endrin	72-20-8		
Ethylene Dibromide (EDB)	106-93-4		
Hexachlorocyclohexane (HCH), all isomers <sup>24</sup>	608-73-1		
Heptachlor	76-44-8	Not Detected	U.S. EPA Methods: 8081A / 8151A [DL=0.5]
Heptachlor epoxide	1024-57-3		
Isodrin	465-73-6		
Kelevan	4234-79-1		
Kepone	143-50-0		
Malathion	121-75-5		
Methoxychlor	72-43-5		
Methyl Parathion	298-00-0		
Mirex	2385-85-5		
Paraquat	1910-42-5		
Parathion	56-38-2		
Perthane	72-56-0		
Quintozene	82-68-8		
Strobane	8001-50-1		
Telodrin	297-78-9		
Timiperone (DTTB)	57648-21-2		
Toxaphene	8001-35-2		
2,4,5-Trichlorophenoxyacetic acid (2,4,5-T), salts, compounds	93-76-5		
2-(2,4,5-Trichlorophenoxy) propionic acid, salts, compounds	93-72-1		
Pentachlorophenol (PCP), salts, esters and compounds of PCP	87-86-5		
Tetrachlorophenol (TeCP), salts and compounds of TeCP	25167-83-3	Not Detected	35 LMBG B82.02-8 <sup>25</sup> [DL=0.5]

<sup>24</sup> All isomers of HCH, including alpha (319-84-6), beta (319-85-7), delta (319-86-8), epsilon (6108-10-7), and gamma (lindane, 58-89-9).

<sup>25</sup> EXCEPTION: PCP and TeCP analysis for leather substrates requires test method DIN 53313.

**OTHER ORGANIC CHEMICALS**

Halogenated biphenyls, including - Polychlorinated biphenyl (PCB)	1336-36-3 53469-21-9		
Halogenated diarylalkanes	Various CAS #s		
Halogenated naphthalenes	Various CAS #s		
Halogenated terphenyls, including - Polychlorinated terphenyl (PCT)	Various CAS #s	Usage Ban (TR=1)	Solvent extraction / GC-MS
Halogenated diphenyl methanes, including - Monomethyl-dibromo-diphenyl methane <sup>26</sup> - Monomethyl-dichloro-diphenyl methane <sup>27</sup> - Monomethyl-tetrachloro-diphenyl methane <sup>28</sup>	99688-47-8 81161-70-8 76253-60-6		
N-Methylaniline	100-61-8	Usage Ban (TR=30)	

<sup>26</sup> Also DBBT

<sup>27</sup> Also Ugilec 121 or Ugilec 21

<sup>28</sup> Also Ugilec 141

**Appendix 1: Azo Dyes which, through reductive cleavage, may form restricted substances (amines)**

<b>Dye Name Color Index #</b>	<b>CAS Number (if available)</b>	<b>Dye Name Color Index #</b>	<b>CAS Number (if available)</b>	<b>Dye Name Color Index #</b>	<b>CAS Number (if available)</b>
Acid Black 29	12217-14-0	Direct Blue 8	2429-71-2	Direct Orange 6	6637-88-3
Acid Black 94	6358-80-1	Direct Blue 9	No CAS number	Direct Orange 7	2868-76-0
Acid Black 131	12219-01-1	Direct Blue 10	4198-19-0	Direct Orange 8	64083-59-6
Acid Black 132	12219-02-2	Direct Blue 14	72-57-1	Direct Orange 10	6405-94-3
Acid Black 209	No CAS number	Direct Blue 15	2429-74-5	Direct Orange 108	No CAS number
Acid Brown 415	No CAS number	Direct Blue 22	2586-57-4	Direct Red 1	25188-24-3
Acid Orange 24	1320-07-6	Direct Blue 25	25180-27-2	Direct Red 2	992-59-6
Acid Orange 45	2429-80-3	Direct Blue 35	No CAS number	Direct Red 7	No CAS number
Acid Red 4	5858-39-9	Direct Blue 53	314-13-6	Direct Red 10	25188-29-8
Acid Red 5	No CAS number	Direct Blue 76	16143-79-6	Direct Red 13	25188-30-1
Acid Red 24	No CAS number	Direct Blue 151	110735-25-6	Direct Red 17	No CAS number
Acid Red 73	5413-75-2	Direct Blue 160	No CAS number	Direct Red 21	6406-01-5
Acid Red 85	3567-65-5	Direct Blue 173	No CAS number	Direct Red 22	No CAS number
Acid Red 114	6459-94-5	Direct Blue 192	159202-76-3	Direct Red 24	No CAS number
Acid Red 115	No CAS number	Direct Blue 201	60800-55-7	Direct Red 26	No CAS number
Acid Red 116	No CAS number	Direct Blue 215	6771-80-8	Direct Red 28	573-58-0
Acid Red 128	6548-30-7	Direct Blue 295	6420-22-0	Direct Red 37	3530-19-6
Acid Red 148	No CAS number	Direct Brown 1	3811-71-0	Direct Red 39	6358-29-8
Acid Red 150	No CAS number	Direct Brown 1:2	2586-58-5	Direct Red 44	6548-29-4
Acid Red 158	8004-55-5	Direct Brown 2	25255-06-5	Direct Red 46	2302-97-8
Acid Red 167	No CAS number	Direct Brown 6	25180-39-6	Direct Red 62	No CAS number
Acid Red 264	No CAS number	Direct Brown 25	33363-87-0	Direct Red 67	No CAS number
Acid Red 265	6358-43-6	Direct Brown 27	No CAS number	Direct Red 72	8005-64-9
Acid Red 420	No CAS number	Direct Brown 31	25180-41-0	Direct Violet 1	25188-44-7
Acid Violet 12	6625-46-3	Direct Brown 33	No CAS number	Direct Violet 12	2429-75-6
Acid Violet 49	1694-09-3	Direct Brown 51	No CAS number	Direct Violet 21	No CAS number
Basic Brown 4	5421-66-9	Direct Brown 59	6247-51-4	Direct Violet 22	25329-82-2
Basic Red 42	No CAS number	Direct Brown 79	6483-77-8	Direct Yellow 1	No CAS number
Basic Red 111	113741-92-7	Direct Brown 95	16071-86-6	Direct Yellow 24	6486-29-9
Direct Black 4	25156-49-4	Direct Brown 101	No CAS number	Direct Yellow 48	No CAS number
Direct Black 29	No CAS number	Direct Brown 154	6360-54-9	Disperse Orange 149	No CAS number
Direct Black 38	1937-37-7	Direct Brown 222	No CAS number	Disperse Red 151	No CAS number
Direct Black 91	6739-62-4	Direct Green 1	3626-28-6	Disperse Yellow 7	No CAS number
Direct Black 154	54804-85-2	Direct Green 6	4335-09-5	Disperse Yellow 23	6250-22-3
Direct Blue 1	3814-14-3	Direct Green 8	25180-47-6	Disperse Yellow 56	No CAS number
Direct Blue 2	2429-73-4	Direct Green 8:1	No CAS number	Solvent Orange 7	3118-98-6
Direct Blue 3	No CAS number	Direct Green 85	72390-60-4	Solvent Red 19	6368-72-5
Direct Blue 6	2602-46-2	Direct Orange 1	54579-28-1	Solvent Red 23	85-86-9

## Appendix 2: Index of CAS Numbers

CAS Number	Substance	Chemical Group	CAS Number	Substance	Chemical Group
50-00-0	Formaldehyde	Auxiliary Chemicals	93-72-1	2-(2,4,5-Trichlorophenoxy) propionic acid	Pesticides
50-29-3	<i>p,p</i> -Dichlorodiphenyltrichloroethane ( <i>p,p</i> -DDT)	Pesticides	93-76-5	2,4,5-Trichlorophenoxyacetic acid (2,4,5-T)	Pesticides
53-19-0	<i>o,p</i> -Dichlorodiphenyldichloroethane ( <i>o,p</i> -DDD)	Pesticides	95-53-4	<i>o</i> -Toluidine	Azo Amines
56-18-8	Dipropylene triamine	Auxiliary Chemicals	95-68-1	2,4-Xylidine	Azo Amines
56-38-2	Parathion	Pesticides	95-69-2	4-Chloro- <i>o</i> -toluidine	Azo Amines
57-74-9	Chlordane	Pesticides	95-80-7	2,4-Toluenediamine	Azo Amines
58-89-9	Lindane ( $\gamma$ -HCH)	Pesticides	96-12-8	1,2-Dibromo-3-Chloropropane (DBCP)	Pesticides
60-09-3	4-Amino azobenzene	Azo Amines	97-56-3	<i>o</i> -Aminoazotoluene	Azo Amines
60-11-7	4-Dimethylaminoazo-benzene	Azo Amines	97-63-2	Ethyl methacrylate	Monomers
60-57-1	Dieldrin	Pesticides	97-75-7	2,4-Dichlorophenoxyacetic acid	Pesticides
62-56-6	Thiourea	Auxiliary Chemicals	97-88-1	Butyl methacrylate	Monomers
68-12-2	N,N-Dimethylformamide (DMF)	Solvents	99-55-8	2-Amino-4-nitrotoluene	Azo Amines
71-43-2	Benzene	Solvents	100-61-8	N-Methylaniline	Other Organic Chem's
72-20-8	Endrin	Pesticides	101-14-4	4,4'-Methylene-bis-(2-chloraniline)	Azo Amines
72-43-5	Methoxychlor	Pesticides	101-68-8	Diphenylmethane diisocyanate (MDI)	Isocyanates
72-54-8	<i>p,p</i> -Dichlorodiphenyldichloroethane ( <i>p,p</i> -DDD)	Pesticides	101-77-9	4,4'-Diamino-diphenylmethane	Azo Amines
72-55-9	<i>p,p</i> -Dichlorodiphenyldichloroethylene ( <i>p,p</i> -DDE)	Pesticides	101-80-4	4,4'-Oxydianiline	Azo Amines
72-56-0	Perthane	Pesticides	106-47-8	<i>p</i> -Chloroaniline	Azo Amines
72-57-1	Direct Blue 14	Azo Dyes	106-93-4	Ethylene Dibromide (EDB)	Pesticides
75-01-4	Vinylchloride	Monomers	107-13-1	Acrylonitrile	Monomers
76-44-8	Heptachlor	Pesticides	108-90-7	Monochlorobenzene	Chlorinated Aromatics
78-30-8	Tri- <i>o</i> -cresyl phosphate	Flame Retardants	109-86-4	2-Methoxyethanol	Solvents
79-01-6	Trichloroethylene (TCE)	Solvents	110-49-6	2-Methoxyethanol acetate	Solvents
79-06-1	Acrylamide	Monomers	110-80-5	Ethoxyethanol	Solvents
79-07-2	2-Chloracetamide	Biocides	111-15-9	Ethoxyethanol acetate	Solvents
80-62-6	Methyl methacrylate	Monomers	111-40-0	Diethylenetriamine	Auxiliary Chemicals
82-28-0	Disperse Orange 11	Disperse Dyes	115-29-7	Endosulfan (Thiosulfan)	Pesticides
82-68-8	Quintozene	Pesticides	115-32-2	Dicofol	Pesticides
85-86-9	Solvent Red 23	Azo Dyes	116-06-3	Aldicarb	Pesticides
87-62-7	2,6-Xylidine	Azo Amines	117-81-7	Di(ethylhexyl) phthalate (DEHP)	Phthalates
87-86-5	Pentachlorophenol (PCP)	Pesticides	118-74-1	Hexachlorobenzene	Chlorinated Aromatics
90-04-0	<i>o</i> -Anisidine	Azo Amines	119-15-3	Disperse Yellow 1	Disperse Dyes
90-43-7	<i>o</i> -Phenylphenol	Solvents	119-90-4	3,3'-Dimethoxybenzidine	Azo Amines
91-08-7	2,6-Toluene diisocyanate (2,6-TDI)	Isocyanates	119-93-7	3,3'-Dimethylbenzidine	Azo Amines
91-59-8	2-Naphthylamine	Azo Amines	120-71-8	<i>p</i> -Cresidine	Azo Amines
91-94-1	3,3'-Dichlorobenzidine	Azo Amines	121-75-5	Malathion	Pesticides
92-67-1	4-Aminodiphenyl	Azo Amines	122-99-6	2-Phenoxyethanol	Solvents
92-87-5	Benzidine	Azo Amines	126-72-7	Tris (2,3-dibromopropyl) phosphate (TRIS)	Flame Retardants

CAS Number	Substance	Chemical Group	CAS Number	Substance	Chemical Group
127-18-4	Tetrachloroethene (Perchloroethylene)	Solvents	2429-75-6	Direct Violet 12	Azo Dyes
137-17-7	2,4,5-Trimethylaniline	Azo Amines	2429-80-3	Acid Orange 45	Azo Dyes
139-65-1	4,4'-Thiodianiline	Azo Amines	2475-45-8	Disperse Blue 1	Disperse Dyes
140-88-5	Ethyl acrylate	Monomers	2475-46-9	Disperse Blue 3	Disperse Dyes
141-32-2	Butyl acrylate	Monomers	2581-69-3	Disperse Orange 1	Disperse Dyes
141-43-5	2-Aminoethanol	Auxiliary Chemicals	2586-57-4	Direct Blue 22	Azo Dyes
143-50-0	Kepone	Pesticides	2586-58-5	Direct Brown 1:2	Azo Dyes
297-78-9	Telodrin	Pesticides	2602-46-2	Direct Blue 6	Azo / Other Dyes
298-00-0	Methyl Parathion	Pesticides	2682-20-4	Sensitizing Isothiazolinones	Biocides
309-00-2	Aldrin	Pesticides	2778-42-9	Tetramethylxylene diisocyanate (TMXDI)	Isocyanates
314-13-6	Direct Blue 53	Azo Dyes	2795-39-3	Perfluorooctane sulfonate (PFOS)	Auxiliary Chemicals
319-84-6	$\alpha$ -HCH	Pesticides	2832-40-8	Disperse Yellow 3	Disperse Dyes
319-85-7	$\beta$ -HCH	Pesticides	2868-76-0	Direct Orange 7	Azo Dyes
319-86-8	$\delta$ -HCH	Pesticides	2872-48-2	Disperse Red 11	Disperse Dyes
465-73-6	Isodrin	Pesticides	2872-52-8	Disperse Red 1	Disperse Dyes
569-61-9	Basic Red 9	Other Dyes	3118-98-6	Solvent Orange 7	Azo Dyes
573-58-0	Direct Red 28	Azo / Other Dyes	3179-89-3	Disperse Red 17	Azo Dyes
584-84-9	2,4-Toluene diisocyanate (2,4-TDI)	Isocyanates	3179-90-6	Disperse Blue 7	Disperse Dyes
608-73-1	Hexachlorocyclohexane (HCH)	Pesticides	3268-87-9	1,2,3,4,6,7,8,9-Octachlorodibenzo- <i>p</i> -dioxin	Dioxins and Furans
608-93-5	Pentachlorobenzene	Chlorinated Aromatics	3424-82-6	<i>o,p</i> -Dichlorodiphenyldichloroethylene ( <i>o,p</i> -DDE)	Pesticides
615-05-4	2,4-Diaminoanisole	Azo Amines	3530-19-6	Direct Red 37	Azo Dyes
632-99-5	Basic Violet 14	Other Dyes	3567-65-5	Acid Red 85	Azo Dyes
668-34-8	Triphenyltin (TPhT)	Organotin Compounds	3626-28-6	Direct Green 1	Azo Dyes
730-40-5	Disperse Orange 3	Disperse Dyes	3761-53-3	Acid Red 26	Other Dyes
789-02-6	<i>o,p</i> -Dichlorodiphenyltrichloroethane ( <i>o,p</i> -DDT)	Pesticides	3811-71-0	Direct Brown 1	Azo Dyes
822-06-0	Hexamethylene diisocyanate (HDI)	Isocyanates	3814-14-3	Direct Blue 1	Azo Dyes
838-88-0	3,3'-Dimethyl-4,4'-diamino-diphenylmethane	Azo Amines	3825-26-1	Perfluorooctanoic acid (PFOA)	Auxiliary Chemicals
872-50-4	N-Methylpyrrolidone (NMP)	Solvents	3860-63-7	Disperse Blue 26	Disperse Dyes
877-11-2	Pentachlorotoluene	Chlorinated Aromatics	4098-71-9	Isophorone diisocyanate (IPDI)	Isocyanates
992-59-6	Direct Red 2	Azo Dyes	4198-19-0	Direct Blue 10	Azo Dyes
1024-57-3	Heptachlor epoxide	Pesticides	4234-79-1	Kelevan	Pesticides
1320-07-6	Acid Orange 24	Azo Dyes	4335-09-5	Direct Green 6	Azo Dyes
1336-36-3	Polychlorinated Biphenyls (PCBs)	Other Organic Chem's	5412-25-9	Bis (2,3-dibromopropyl) phosphate	Flame Retardants
1589-47-5	2-Methoxypropanol	Solvents	5413-75-2	Acid Red 73	Azo Dyes
1694-09-3	Acid Violet 49	Azo Dyes	5421-66-9	Basic Brown 4	Azo Dyes
1746-01-6	2,3,7,8-Tetrachlorodibenzo- <i>p</i> -dioxin	Dioxins and Furans	5455-55-1	Tris (1-aziridinyl)-phosphine oxide (TEPA)	Flame Retardants
1910-42-5	Paraquat	Pesticides	5858-39-9	Acid Red 4	Azo Dyes
1937-37-7	Direct Black 38	Azo / Other Dyes	6108-10-7	$\epsilon$ -HCH	Pesticides
2302-97-8	Direct Red 46	Azo Dyes	6164-98-3	Chlordimeform	Pesticides
2385-85-5	Mirex	Pesticides	6247-51-4	Direct Brown 59	Azo Dyes
2429-71-2	Direct Blue 8	Azo Dyes	6250-22-3	Disperse Yellow 23	Azo Dyes
2429-73-4	Direct Blue 2	Azo Dyes	6358-29-8	Direct Red 39	Azo Dyes
2429-74-5	Direct Blue 15	Azo Dyes	6358-43-6	Acid Red 265	Azo Dyes

CAS Number	Substance	Chemical Group	CAS Number	Substance	Chemical Group
6358-80-1	Acid Black 94	Azo Dyes	25180-27-2	Direct Blue 25	Azo Dyes
6360-54-9	Direct Brown 154	Azo Dyes	25180-39-6	Direct Brown 6	Azo Dyes
6368-72-5	Solvent Red 19	Azo Dyes	25180-41-0	Direct Brown 31	Azo Dyes
6373-73-5	Disperse Yellow 9	Disperse Dyes	25180-47-6	Direct Green 8	Azo Dyes
6405-94-3	Direct Orange 10	Azo Dyes	25188-24-3	Direct Red 1	Azo Dyes
6406-01-5	Direct Red 21	Azo Dyes	25188-29-8	Direct Red 10	Azo Dyes
6420-22-0	Direct Blue 295	Azo Dyes	25188-30-1	Direct Red 13	Azo Dyes
6459-94-5	Acid Red 114	Azo Dyes	25188-44-7	Direct Violet 1	Azo Dyes
6483-77-8	Direct Brown 79	Azo Dyes	25255-06-5	Direct Brown 2	Azo Dyes
6486-29-9	Direct Yellow 24	Azo Dyes	25329-82-2	Direct Violet 22	Azo Dyes
6548-29-4	Direct Red 44	Azo Dyes	26172-55-4	Sensitizing Isothiazolinones	Biocides
6548-30-7	Acid Red 128	Azo Dyes	26530-20-1	Sensitizing Isothiazolinones	Biocides
6625-46-3	Acid Violet 12	Azo Dyes	28553-12-0	Di-iso-nonyl phthalate (DINP)	Phthalates
6637-88-3	Direct Orange 6	Azo Dyes	32534-81-9	Penta-bromodiphenyl ether (pentaBDE)	Flame Retardants
6739-62-4	Direct Black 91	Azo Dyes	32536-52-0	Octa-bromodiphenyl ether (octaBDE)	Flame Retardants
6771-80-8	Direct Blue 215	Azo Dyes	33363-87-0	Direct Brown 25	Azo Dyes
7439-92-1	Lead (Pb)	Metals	35822-46-9	1,2,3,4,6,7,8-Heptachlorodibenzo- <i>p</i> -dioxin	Dioxins and Furans
7439-97-6	Mercury (Hg)	Metals	39001-02-0	1,2,3,4,6,7,8,9-Octachlorodibenzofuran	Dioxins and Furans
7440-02-0	Nickel (Ni)	Metals	39227-28-6	1,2,3,4,7,8-Hexachlorodibenzo- <i>p</i> -dioxin	Dioxins and Furans
7440-36-0	Antimony (Sb)	Metals	40321-76-4	1,2,3,7,8-Pentachlorodibenzo- <i>p</i> -dioxin	Dioxins and Furans
7440-38-2	Arsenic (As)	Metals	50585-41-6	2,3,7,8-Tetrabromodibenzo- <i>p</i> -dioxin	Dioxins and Furans
7440-43-9	Cadmium (Cd)	Metals	51207-31-9	2,3,7,8-Tetrachlorodibenzofuran	Dioxins and Furans
7440-47-3	Chromium (Cr)	Metals	53469-21-9	Polychlorinated biphenyl	Other Organic Chem's
7440-48-4	Cobalt (Co)	Metals	54579-28-1	Direct Orange 1	Azo Dyes
7440-50-8	Copper (Cu)	Metals	54804-85-2	Direct Black 154	Azo Dyes
8001-35-2	Toxaphene	Pesticides	54824-37-2	Disperse Yellow 49	Disperse Dyes
8001-50-1	Strobane	Pesticides	55673-89-7	1,2,3,4,7,8,9-Heptachlorodibenzofuran	Dioxins and Furans
8004-55-5	Acid Red 158	Azo Dyes	56573-85-4	Tributyltin (TBT)	Organotin Compounds
8005-64-9	Direct Red 72	Azo Dyes	57117-31-4	2,3,4,7,8-Pentachlorodibenzofuran	Dioxins and Furans
8005-78-5	Basic Brown 4	Azo Dyes	57117-41-6	1,2,3,7,8-Pentachlorodibenzofuran	Dioxins and Furans
9002-86-2	Polyvinyl Chloride (PVC)	Polyvinyl Chloride	57117-44-9	1,2,3,6,7,8-Hexachlorodibenzofuran	Dioxins and Furans
12217-14-0	Acid Black 29	Azo Dyes	57648-21-2	Timiperone (DTTB)	Pesticides
12219-01-1	Acid Black 131	Azo Dyes	57653-85-7	1,2,3,6,7,8-Hexachlorodibenzo- <i>p</i> -dioxin	Dioxins and Furans
12219-02-2	Acid Black 132	Azo Dyes	59536-65-1	Polybrominated biphenyls (PBBs)	Flame Retardants
12222-75-2	Disperse Blue 35	Disperse Dyes	60800-55-7	Direct Blue 201	Azo Dyes
12222-97-8	Disperse Blue 102	Disperse Dyes	60851-34-5	2,3,4,6,7,8-Hexachlorodibenzofuran	Dioxins and Furans
12223-01-7	Disperse Blue 106	Disperse Dyes	61951-51-7	Disperse Blue 124	Disperse Dyes
12223-33-5	Disperse Orange 37/59/76	Disperse Dyes	63449-39-8	Chlorinated paraffins	Flame Retardants
12236-29-2	Disperse Yellow 39	Disperse Dyes	64083-59-6	Direct Orange 8	Azo Dyes
16071-86-6	Direct Brown 95	Azo Dyes	67562-39-4	1,2,3,4,6,7,8-Heptachlorodibenzofuran	Dioxins and Furans
16143-79-6	Direct Blue 76	Azo Dyes	67933-57-7	2,3,7,8-Tetrabromodibenzofuran	Dioxins and Furans
18540-29-9	Chromium (Cr <sup>+6</sup> ) – hexavalent	Metals	70648-26-9	1,2,3,4,7,8-Hexachlorodibenzofuran	Dioxins and Furans
19408-74-3	1,2,3,7,8,9-Hexachlorodibenzo- <i>p</i> -dioxin	Dioxins and Furans	70657-70-4	2-Methoxypropanol acetate	Solvents
23355-64-8	Disperse Brown 1	Disperse Dyes	72390-60-4	Direct Green 85	Azo Dyes
25156-49-4	Direct Black 4	Azo Dyes	72918-21-9	1,2,3,7,8,9-Hexachlorodibenzofuran	Dioxins and Furans
25167-83-3	Tetrachlorophenol	Pesticides	76253-60-6	Monomethyltetrachlorodiphenylmethane	Other Organic Chem's

CAS Number	Substance	Chemical Group	CAS Number	Substance	Chemical Group
81161-70-8	Monomethyldichlorodiphenylmethane	Other Organic Chem's	110999-46-7	1,2,3,7,8,9-Hexabromodibenzo- <i>p</i> -dioxin	Dioxins and Furans
99688-47-8	Monomethyldibromodiphenylmethane	Other Organic Chem's	113741-92-7	Basic Red 111	Azo Dyes
107555-93-1	1,2,3,7,8-Pentabromodibenzofuran	Dioxins and Furans	118685-33-9	Navy Blue	Other Dyes
109333-34-8	1,2,3,7,8-Pentabromodibenzo- <i>p</i> -dioxin	Dioxins and Furans	131166-92-2	2,3,4,7,8-Pentabromodibenzofuran	Dioxins and Furans
110735-25-6	Direct Blue 151	Azo Dyes	132207-33-1	Asbestos	Asbestos
110999-44-5	1,2,3,4,7,8-Hexabromodibenzo- <i>p</i> -dioxin	Dioxins and Furans	159202-76-3	Direct Blue 192	Azo Dyes
110999-45-6	1,2,3,6,7,8-Hexabromodibenzo- <i>p</i> -dioxin	Dioxins and Furans			

### Azo Dyes Without CAS Numbers

Acid Black 209
Acid Brown 415
Acid Red 5
Acid Red 24
Acid Red 115
Acid Red 116
Acid Red 148
Acid Red 150
Acid Red 167
Acid Red 264
Acid Red 420
Basic Red 42
Direct Black 29

Direct Blue 3
Direct Blue 9
Direct Blue 35
Direct Blue 160
Direct Blue 173
Direct Brown 27
Direct Brown 33
Direct Brown 51
Direct Brown 101
Direct Brown 222
Direct Green 8:1
Direct Orange 108
Direct Red 7

Direct Red 17
Direct Red 22
Direct Red 24
Direct Red 26
Direct Red 62
Direct Red 67
Direct Violet 21
Direct Yellow 1
Direct Yellow 48
Disperse Orange 149
Disperse Red 151
Disperse Yellow 7
Disperse Yellow 56