

Appendix 2: Chemicals potentially discharged through effluents from industrial sources

The following listings are not intended to be comprehensive, because there may be considerable variation in the uses of chemicals by individual industries in different countries and regions. The listings have been developed to help water authorities and other agencies related to drinking-water quality monitoring and control to undertake an inventory of potential chemical contaminants within a catchment. Some of the uses listed may be very minor, but it is not clear that they can be ignored when assessing the potential for contamination from industrial sources. Where no potential chemical discharges have been included for an activity, this does not necessarily mean that there are no discharges — an assessment in the management programme may be required, based on local knowledge.

Table A2 Chemicals potentially discharged through effluents from industrial sources

Source activity	Chemicals potentially discharged through effluent
0 Activities not adequately defined <i>Consumer solvent use surface coating</i>	
1 Agriculture, hunting, forestry and fishing	
11 <i>Agriculture and hunting</i>	
111 Agriculture and livestock production	Lindane
12 <i>Forestry and logging</i>	Arsenic, boron, 2,4,6-trichlorophenol
121 Forestry	
2 Mining and quarrying	Sulfate
21 <i>Coal mining</i>	
22 <i>Crude petroleum and natural gas production</i>	Barium
23 <i>Metal ore mining</i>	Aluminium, antimony, arsenic, barium, boron, bromodichloromethane, bromoform, cadmium, chromium, copper, dibromochloromethane, iron, lead, manganese, mercury, molybdenum, nickel, selenium, uranium, zinc
29 <i>Other mining</i>	Nitrate
3 Manufacturing	
31 <i>Manufacture of food, beverages and tobacco</i>	Chlorine
311/2 Food manufacturing	Aluminium, ammonia
3111 Slaughtering, preparing and preserving meat	Nitrite
3112 Manufacture of dairy products	Bromate
3113 Canning and preserving fruits and vegetables	
3114 Canning and preserving and processing of fish	Bromate
3115 Manufacture of vegetable and animal oils and fats	
3116 Grain mill products	Bromate
3117 Bakery products	
3118 Sugar factories and refineries	
3121 Food products not elsewhere classified	Arsenic, chloride
3122 Alfalfa dehydrating	
313 Beverage Industries	
3131 Distilling, rectifying and blending spirits	
3132 Wine industries	
3133 Malt liquors and malt	Bromate
3134 Soft drinks	
32 <i>Textile, wearing apparel and leather</i>	Arsenic

Source activity	Chemicals potentially discharged through effluent
321 Manufacture of textiles 3210 Manufacture of textiles	Ammonia, antimony, trichlorobenzenes, EDTA, formaldehyde, nitrilotriacetic acid
322 Manufacture of wearing apparel, except footwear 3211 Spinning, weaving and finishing textiles 3214 Carpet and rug manufacture	Formaldehyde Trichlorobenzenes
323 Manufacture of leather and products of leather 3231 Tanneries and leather finishing	Boron Chromium, hydrogen sulfide, sulfate
34 <i>Paper and paper products, printing and publishing</i> 341 Manufacture of paper and paper products 342 Printing, publishing and allied industries	Antimony
35 <i>Manufacture of chemicals, and chemical, petroleum, coal rubber and plastic products</i> 351 Manufacture of industrial chemicals	Ammonia, carbon tetrachloride, fluoride, formaldehyde,
3511 Basic industrial chemicals, except fertilizers	Arylamide, benzene, bromodichloromethane, bromoform, chloride, chlorine, chloroform, dibromochloromethane, dichloroacetic acid, 1,2-dichloroethane, 1,1-dichloroethene, 1,2-dichloroethene, 1,2-dichloropropane, epichlorohydrin, ethylbenzene, hexachlorobutadiene, hydrogen sulfide, mercury, monochloroacetic acid, monochlorobenzene, nitrate, sodium, sulfate, tetrachloroethene, toluene, trichloroacetic acid, trichlorobenzenes, 2,4,6-trichlorophenol, vinyl chloride, xylenes
3512 Manufacture of fertilizers and pesticides	Alachlor, aldicarb, aldrin/dieldrin, antimony, arsenic, atrazine, bentazone, boron, carbofuran, chlordane, chloride, chloroform, chlorotoluron, chlorpyrifos, chromium, copper, cyanazine, cyanogen chloride, 2,4-D, 2,4-DB, DDT, 1,2-dibromo-3-chloropropane, 1,2-dibromoethane, dichloroacetic acid, 1,2-dichlorobenzene, 1,4-dichlorobenzene, dichloromethane, 1,2-dichloropropane, 1,3-dichloropropene, dichlorprop, dimethoate, diquat, endosulfan, endrin, ethylbenzene, fenitrothion, fenoprop, glyphosate and AMPA, heptachlor and heptachlorepoxyde, hexachlorobenzene, hexachlorobutadiene, isoproturon, lindane, malathion, MCPA, mecoprop, mercury, methoxychlor, metolachlor, molinate, monochloroacetic acid, monochlorobenzene, nitrate, parathion, parathion methyl, pendimethalin, pentachlorophenol, permethrin, 2-phenylphenol, pyriproxyfen, simazine, sulfate,

Source activity	Chemicals potentially discharged through effluent
3513 Resins, plastics and fibres except glass	2,4,5-T, terbuthylazine, trichloroacetic acid, trichloroacetronitrile, trichlorobenzenes, 2,4,6-trichlorophenol, trifluralin, xylenes, zinc Acrylamide, barium, di(2-ethylhexyl)adipate, di(2-ethylhexyl)phthalate, EDTA, epichlorohydrin, iron, lead, styrene, toluene, trichloroethene, vinyl chloride
352 Manufacture of other chemical organic products	Xylenes
3521 Manufacture of paints, varnishes and lacquers	Arsenic, barium, benzene, carbon tetrachloride, chromium, 1,2-dichloroethane, dichloromethane, ethylbenzene, toluene, trichloroethene
3522 Manufacture of drugs and medicines	Aluminium, antimony, arsenic, barium, boron, cadmium, chloral hydrate, chromium, copper, dichloroacetic acid, iron, mercury, zinc
3523 Manufacture of soap and cleaning preparations	Ammonia, sulfate
3529 Chemical products not elsewhere classified	Acrylamide, ammonia, boron, bromate, bromodichloromethane, bromoform, chloral hydrate, chlorate, chlorine, chlorite, chloroform, copper, dibromochloromethane, dichloroacetic acid, 1,2-dichloropropane, di(2-ethylhexyl)adipate, di(2-ethylhexyl)phthalate, EDTA, epichlorohydrin, formaldehyde, hexachlorobutadiene, hydrogen sulfide, iron, lead, manganese, monochloramine, monochloroacetic acid, nickel, nitrate, nitrilotriacetic acid, nitrite, sodium, sulfate, trichloroacetic acid, 1,1,1-trichloroethane, 2,4,6-trichlorophenol
353 Petroleum refineries	Benzene, lead, toluene, xylenes
354 Manufacture of misc. products of petroleum and coal	Acrylamide, barium, benzene, bromodichloromethane, bromoform, carbon tetrachloride, chloral hydrate, chlordane, chloroform, cyanogen chloride, dibromochloromethane, dichloroacetic acid, 1,2-dichloroethane, 1,1-dichloroethene, 1,2-dichloroethene, dichloromethane, 1,2-dichloropropane, di(2-ethylhexyl)adipate, di(2-ethylhexyl)phthalate, EDTA, epichlorohydrin, ethylbenzene, formaldehyde, heptachlor and heptachlorepoxyde, hexachlorobenzene, hexachlorobutadiene, hydrogen sulfide, molybdenum, monochloroacetic acid, monochlorobenzene, nitrilotriacetic acid, styrene, tetrachloroethene, toluene, trichloroacetic acid, trichlorobenzenes, 1,1,1-trichloroethane, trichloroethene, 2,4,6-trichlorophenol, vinyl chloride, xylenes
355 Manufacture of rubber products	Ammonia, barium, hexachlorobutadiene, sodium, zinc

Source activity	Chemicals potentially discharged through effluent
3551 Tyre and tube industries	
<i>36 Non-metallic mineral products, except products of petroleum and coal</i>	
361 Manufacture of pottery, china and earthenware	Antimony, chromium, fluoride, lead
362 Manufacture of glass and glass products	Antimony, arsenic, barium, boron, chromium, fluoride, manganese, mercury, molybdenum, nitrate, sodium, sulfate
369 Manufacture of other non-metallic mineral products	
3691 Manufacture of structural clay products	Barium, fluoride
3692 Cement, lime and plaster	
3699 Products not elsewhere classified	
<i>37 Basic metal industries</i>	
371 Iron and steel basic industries	Benzo[a]pyrene, boron, fluoranthene, fluoride, manganese, molybdenum, nickel, sulfate Cyanide, iron
372 Non-ferrous metal basic industries	Aluminium, antimony, arsenic, barium, cadmium, chromium, copper, lead, mercury, selenium, sodium, uranium, zinc
<i>38 Fabricated metal products, machinery and equipment</i>	Aluminium, ammonia, antimony, arsenic, barium, cadmium, carbon tetrachloride, cyanide, dichloromethane, di(2-ethylhexyl)-adipate, di(2-ethylhexyl)-phthalate, EDTA, epichlorohydrin, ethylbenzene, hexachlorobutadiene, iron, lead, manganese, mercury, molybdenum, monochlorobenzene, nickel, nitrotriacetic acid, sodium, sulfate, tetrachloroethene, toluene, trichlorobenzenes, 1,1,1-trichloroethane, trichloroethene, xylenes, zinc
381 Fabricated metal products, except machinery	
384 Manufacture of transport equipment	
3841 Ship building and repairing	
4 Electricity, gas and water	Acrylamide, aluminium, chlorine, copper, epichlorohydrin, fluoride, iron, sodium, sulfate
<i>41 Electricity, gas and steam</i>	
4101 Electricity light and power	Benzo[a]pyrene, cyanide, fluoranthene, uranium
6 Wholesale and retail trade	
<i>61 Wholesale trade</i>	
<i>62 Retail trade</i>	
<i>63 Restaurants and hotels</i>	
631 Restaurants, cafes, and other eating and drinking	

Source activity	Chemicals potentially discharged through effluent
632 Hotels, rooming houses, camps and other lodging	
7 Transport, storage and communication	Benzo[a]pyrene, fluoranthene
71 <i>Transport and storage</i>	
711 Land transport	
712 Water transport	
713 Air transport	
719 Services allied to transport	
7192 Storage and warehousing	
9 Community, social and personal services	
92 <i>Sanitary and similar services</i>	Bromate
93 <i>Social and related community services</i>	
931 Education services	
932 Medical, dental and other health services	Antimony, boron, bromoform, chloral hydrate, chloroform, iron, lindane, mercury, nitritotriacetic acid, trichloroethene, zinc
94 <i>Recreational and cultural services</i>	Chlorine, chromium, copper, nitritotriacetic acid
95 <i>Personal and household services</i>	EDTA, nitritotriacetic acid
952 Laundries, laundry services and cleaning	1,2-dichloropropane, tetrachloroethene, trichloroethene

Notes

1. Classification of source activities is based on the *Industrial Statistics Year-Book, UN publication, Sales No. E/F.91XVII.14* (United Nations, 1989).
2. Effluents from all industrial sources have the possibility of containing synthetic detergents.