**Supporting Information**

Table A. Air toxics with cancer risk reported in the National-Scale Air Toxics Assessment 2005

|  |  |  |  |
| --- | --- | --- | --- |
| **Rank** | **air toxics** | **National average cancer risk** | **% tracts with cancer risk > one in a million** |
| 1 | formaldehyde | 2.2E-05 | 100.0% |
| 2 | benzene (including benzene from gasoline) | 7.6E-06 | 98.8% |
| 3 | acetaldehyde | 3.3E-06 | 99.8% |
| 4 | carbon tetrachloride | 2.9E-06 | 100.0% |
| 5 | naphthalene | 2.3E-06 | 62.4% |
| 6 | 1,3-butadiene | 2.0E-06 | 70.7% |
| 7 | PAHPOM | 1.5E-06 | 40.4% |
| 8 | chromium compounds | 1.4E-06 | 51.0% |
| 9 | arsenic compounds (inorganic including arsine) | 1.4E-06 | 53.4% |
| 10 | tetrachloroethylene (perchloroethylene) | 1.1E-06 | 33.4% |
| 11 | 1,4-dichlorobenzene | 8.4E-07 | 25.4% |
| 12 | Ethylbenzene | 6.5E-07 | 20.6% |
| 13 | ethylene oxide | 5.6E-07 | 13.6% |
| 14 | Acrylonitrile | 3.9E-07 | 7.2% |
| 15 | nickel compounds | 2.4E-07 | 3.8% |
| 16 | coke oven emissions | 2.2E-07 | 4.0% |
| 17 | ethylene dibromide (dibromoethane) | 2.2E-07 | 0.1% |
| 18 | 1,1,2,2-tetrachloroethane | 1.8E-07 | 0.3% |
| 19 | methylene chloride (dichloromethane) | 1.5E-07 | 0.6% |
| 20 | 1,3-dichloropropene | 1.5E-07 | 3.1% |
| 21 | Trichloroethylene | 1.3E-07 | 0.2% |
| 22 | cadmium compounds | 1.2E-07 | 0.4% |
| 23 | ethylene dichloride (1,2-dichloroethane) | 8.3E-08 | 0.2% |
| 24 | methyl tert-butyl ether | 7.9E-08 | 0.2% |
| 25 | beryllium compounds | 7.8E-08 | 0.2% |
| 26 | Hydrazine | 3.2E-08 | 0.1% |
| 27 | vinyl chloride | 3.0E-08 | 0.1% |
| 28 | propylene dichloride (1,2-dichloropropane) | 2.5E-08 | 0.0% |
| 29 | Benzidine | 1.4E-08 | 0.1% |
| 30 | benzotrichloride | 1.2E-08 | 0.2% |
| 31 | n-nitrosomorpholine | 1.2E-08 | 0.2% |
| 32 | bis(2-ethylhexyl)phthalate (DEHP) | 9.4E-09 | 0.0% |
| 33 | 1,1,2-trichloroethane | 9.1E-09 | 0.2% |
| 34 | 1,2-dibromo-3-chloropropane | 5.9E-09 | 0.0% |
| 35 | 4,4'-methylene bis(2-chloroaniline) | 2.6E-09 | 0.0% |
| 36 | 4,4'-methylenedianiline | 2.4E-09 | 0.0% |
| 37 | propylene oxide | 2.1E-09 | 0.0% |
| 38 | 2,4-toluene diisocyanate | 2.0E-09 | 0.0% |
| 39 | polychlorinated biphenyls (aroclors) | 1.5E-09 | 0.0% |
| 40 | 2,4-dinitrotoluene | 1.4E-09 | 0.0% |
| 41 | benzyl chloride | 1.2E-09 | 0.0% |
| 42 | ethylidene dichloride (1,1-dichloroethane) | 1.2E-09 | 0.0% |
| 43 | ethyl carbamate (urethane) chloride (chloroethane) | 1.1E-09 | 0.0% |
| 44 | acrylamide | 1.0E-09 | 0.0% |
| 45 | 1,4-dioxane | 9.1E-10 | 0.0% |
| 46 | 2,4-toluene diamine | 8.5E-10 | 0.0% |
| 47 | hexachlorobenzene | 6.8E-10 | 0.0% |
| 48 | nitrobenzene | 3.5E-10 | 0.0% |
| 49 | 1,3-propane sultone | 3.5E-10 | 0.0% |
| 50 | 1,2,3,4,5,6-hexachlorocyclyhexane (all stereo isomers) | 2.8E-10 | 0.0% |
| 51 | 4-dimethylaminoazobenzene | 2.8E-10 | 0.0% |
| 52 | pentachloronitrobenzene (quintobenzene) | 2.5E-10 | 0.0% |
| 53 | dichloroethyl ether (bis[2-chloroethyl]ether) | 1.9E-10 | 0.0% |
| 54 | epichlorohydrin | 1.8E-10 | 0.0% |
| 55 | o-toluidine | 1.8E-10 | 0.0% |
| 56 | 2-nitropropane | 1.6E-10 | 0.0% |
| 57 | Aniline | 1.5E-10 | 0.0% |
| 58 | trifluralin | 1.3E-10 | 0.0% |
| 59 | allyl chloride | 1.2E-10 | 0.0% |
| 60 | bis(chloromethyl) ether | 7.4E-11 | 0.0% |
| 61 | isophorone | 7.2E-11 | 0.0% |
| 62 | dichlorvos | 6.9E-11 | 0.0% |
| 63 | hexachlorobutadiene | 6.4E-11 | 0.0% |
| 64 | acetamide | 5.1E-11 | 0.0% |
| 65 | n-nitrosodimethylamine | 3.9E-11 | 0.0% |
| 66 | hexachloroethane | 3.4E-11 | 0.0% |
| 67 | pentachlorophenol | 1.4E-11 | 0.0% |
| 68 | ethylene thiourea | 6.4E-12 | 0.0% |
| 69 | bromoform | 2.7E-12 | 0.0% |
| 70 | heptachlor | 2.0E-12 | 0.0% |
| 71 | vinyl bromide | 1.5E-12 | 0.0% |
| 72 | captan | 1.3E-12 | 0.0% |
| 73 | chlorobenzilate | 1.3E-12 | 0.0% |
| 74 | 3,3'-dimethylbenzidine | 6.9E-13 | 0.0% |
| 75 | 2,4,6-trichlorophenol | 6.6E-13 | 0.0% |
| 76 | toxaphene (chlorinated camphene) | 5.9E-13 | 0.0% |
| 77 | Chlordane | 5.3E-13 | 0.0% |
| 78 | 3,3'-dichlorobenzidine | 4.0E-13 | 0.0% |
| 79 | DDE (1,1-dichloro-2,2-bis(p- chlorophenyl) ethylene) | 1.8E-13 | 0.0% |
| 80 | 3,3'-dimethoxybenzidine | 1.3E-15 | 0.0% |
| 81 | cyanide compounds | 0.0E+00 | 0.0% |

Note: Rank is based on the average cancer risk at the national level

Table B. Percent of census tracts with cancer risk greater than one in a million for single air toxic, binary pair, and ternary combination in urban census tracts

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Single air toxic** | | | | **Binary Pair** | | | **Ternary Combination** | | | |
| **Rank** | **Air Toxic** | | **Percent of Census tracts\*** | **Rank** | **Air Toxic** | **Percent of Census tracts\*\*** | **Rank** | **Air Toxic** | | **Percent of Census tracts\*\*\*** |
| 1 | formaldehyde | | 100.0% | 1 | carbon tetrachloride, formaldehyde | 100.0% | 1 | benzene, carbon tetrachloride, formaldehyde | | 100.0% |
| 2 | carbon tetrachloride | | 100.0% | 2 | benzene, formaldehyde | 100.0% | 2 | acetaldehyde, carbon tetrachloride, formaldehyde | | 99.9% |
| 3 | benzene | | 100.0% | 3 | benzene, carbon tetrachloride | 100.0% | 3 | acetaldehyde, benzene, formaldehyde | | 99.9% |
| 4 | acetaldehyde | | 99.9% | 4 | acetaldehyde, formaldehyde | 99.9% | 4 | acetaldehyde, benzene, carbon tetrachloride | | 99.9% |
| 5 | 1,3-butadiene | | 85.1% | 5 | acetaldehyde, carbon tetrachloride | 99.9% | 5 | 1,3-butadiene, benzene, formaldehyde | | 85.1% |
| 6 | naphthalene | | 74.0% | 6 | acetaldehyde, benzene, | 99.9% | 6 | 1,3-butadiene, carbon tetrachloride, formaldehyde | | 85.1% |
| 7 | arsenic compounds | | 63.1% | 7 | 1,3-butadiene, formaldehyde | 85.1% | 7 | 1,3-butadiene, benzene, carbon tetrachloride | | 85.1% |
| 8 | chromium compounds | | 60.8% | 8 | 1,3-butadiene, benzene | 85.1% | 8 | 1,3-butadiene, acetaldehyde, formaldehyde | | 85.1% |
| 9 | PAHPOM | | 44.6% | 9 | 1,3-butadiene, carbon tetrachloride | 85.1% | 9 | 1,3-butadiene, acetaldehyde, carbon tetrachloride | | 85.1% |
| 10 | tetrachloroethylene | | 40.2% | 10 | 1,3-butadiene, acetaldehyde | 85.1% | 10 | 1,3-butadiene, acetaldehyde, benzene | | 85.1% |
| Note: | | | | | | | | |  | | |
| \* Percent of census tracts with cancer risk above one in a million for the corresponding air toxic | | | | | | | | |  | | |
| \*\* Percent of census tracts with cancer risk above one in a million for both air toxics in the pair | | | | | | | | | | | |
| \*\*\* Percent of census tracts with cancer risk above one in a million for all three air toxics in the combination | | | | | | | | | | | |
|  | |

Table C. Percent of census tracts with cancer risk greater than one in a million for single air toxics, binary pairs, and ternary combinations in rural census tracts

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Single air toxic** | | | **Binary Pair** | | | **Ternary Combination** | | | |
| **Rank** | **Air Toxic** | **Percent of Census tracts\*** | **Rank** | **Air Toxic** | **Percent of Census tracts\*\*** | **Rank** | **Air Toxic** | | **Percent of Census tracts\*\*\*** |
| 1 | carbon tetrachloride | 100.0% | 1 | carbon tetrachloride, formaldehyde | 100.0% | 1 | acetaldehyde, carbon tetrachloride, formaldehyde | | 99.4% |
| 2 | formaldehyde | 100.0% | 2 | acetaldehyde, carbon tetrachloride | 99.4% | 2 | benzene, carbon tetrachloride, formaldehyde | | 94.0% |
| 3 | acetaldehyde | 99.4% | 3 | acetaldehyde, formaldehyde | 99.4% | 3 | acetaldehyde, benzene, carbon tetrachloride | | 93.5% |
| 4 | benzene | 94.0% | 4 | benzene, carbon tetrachloride | 94.0% | 4 | acetaldehyde, benzene, formaldehyde | | 93.5% |
| 5 | PAHPOM | 22.6% | 5 | benzene, formaldehyde | 94.0% | 5 | carbon tetrachloride, formaldehyde, PAHPOM | | 22.6% |
| 6 | naphthalene | 12.9% | 6 | acetaldehyde, benzene | 93.5% | 6 | benzene, carbon tetrachloride, PAHPOM | | 22.6% |
| 7 | arsenic compounds | 12.3% | 7 | carbon tetrachloride, PAHPOM | 22.6% | 7 | benzene, formaldehyde, PAHPOM | | 22.6% |
| 8 | 1,3-butadiene | 10.0% | 8 | formaldehyde, PAHPOM | 22.6% | 8 | acetaldehyde, carbon tetrachloride, PAHPOM | | 22.6% |
| 9 | chromium compounds | 9.0% | 9 | benzene, PAHPOM | 22.6% | 9 | acetaldehyde, formaldehyde, PAHPOM | | 22.6% |
| 10 | tetrachloroethylene | 4.5% | 10 | acetaldehyde, PAHPOM | 22.6% | 10 | acetaldehyde, benzene, PAHPOM | | 22.6% |
| Note: | | | | | | | |  | | |
| \* Percent of census tracts with cancer risk above one in a million for the corresponding air toxic | | | | | | | |  | | |
| \*\* Percent of census tracts with cancer risk above one in a million for both air toxics in the pair | | | | | | | | | | |
| \*\*\* Percent of census tracts with cancer risk above one in a million for all three air toxics in the combination | | | | | | | | | | |

Figure A. Carcinogenic health impacts of formaldehyde in DALYs by census tract

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Figure B. Carcinogenic health impacts of benzene in DALYs by census tract

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