

March 27, 2017

AB 2588 “Hot Spots” Air Toxics Profiles



***Air Toxics Profiles for Use under AB 2588 Air Toxics “Hot Spots” Information and Assessment Act***

One of the requirements of an AB 2588 “Hot Spots” Toxics Emissions Inventory Plan (TEIP) is to include identification and quantification methods of listed air toxic substances being emitted. The San Joaquin Valley Air Pollution Control District (District) provides air toxic profiles for use in estimating air toxic emissions for compliance with the AB2588 “Hot Spots” program. Toxic profiles not on this list require review by the District for approval. The toxic profiles listed below provide emission factors and speciation profiles for various facility devices arranged broadly by activity type.

The toxic profiles listed this document may be located via the Table of Contents below one of two ways: 1) By the “Numerical Profile List” or 2) by Source category.

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| 139 | [Cotton Gin - PM Speciation](#_Cotton_Gin_-) |
| 140 | [Cotton Gin - NG Combustion](#_Cotton_Gin_-_1) |
| 154 | [LPG-Fired Internal Combustion 2SLB Engine No Cont](#_LPG-Fired_Internal_Combustion_1) |
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| 158 | [LPG Internal Combustion - Turbine w/ Catalyst](#_LPG_Internal_Combustion_1) |
| 159 | [NG Internal Combustion 2SLB Engine No Controls](#_NG_Internal_Combustion) |
| 160 | [NG Internal Combustion 4SLB Engine No Controls](#_NG_Internal_Combustion_1) |
| 161 | [NG Internal Combustion 4SRB Engine No Controls](#_NG_Internal_Combustion_2) |
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| 239 | [NG Internal Combustion 4SLB Engine CAT RED](#_NG_Internal_Combustion_5) |
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| 250 | [Crematory Human-body](#_Crematory_Human-body) |
| 255 | [Z2 EI Natural Gas Turbines WSPA 1992](#_Z2_EI_Natural) |
| 256 | [Asphalt Concrete with Rubber VOC Emissions](#_Asphalt_Concrete_with) |
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| 258 | [Z2 EI WEMCO Unit VOC](#_Z2_EI_WEMCO) |
| 259 | [Z2 EI FWKO Stock Tank VOC](#_Z2_EI_FWKO) |
| 260 | [Z2 EI Glycol Reboiler District](#_Z2_EI_Glycol) |
| 261 | [Z1 SU Gasoline Dispensing Op VOC Liquid Speciation](#_Z1_SU_Gasoline_2) |

***Agriculture***

**Agricultural Dust**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **District Toxic Profile ID** | 40 | | | | |
| **Description** | Agricultural Dust | | | | |
| **Source** | Emission factors are derived from a worst case composite of 1997 San Joaquin Valley soil profiles listed in EPA's speciation program. | | | | |
|  | | | | | |
| **Pollutant Name** | | **Emission Factor** | **Emission Factor Units** | **CAS#** |
| Aluminum | | 1.26E-01 | lb/lb PM10 | 7429905 |
| Ammonia | | 2.94E-03 | lb/lb PM10 | 7664417 |
| Antimony | | 6.23E-04 | lb/lb PM10 | 7440360 |
| Arsenic | | 2.70E-05 | lb/lb PM10 | 7440382 |
| Barium | | 1.76E-03 | lb/lb PM10 | 7440393 |
| Bromine | | 1.30E-05 | lb/lb PM10 | 7726956 |
| Cadmium | | 2.27E-04 | lb/lb PM10 | 7440439 |
| Chlorine | | 1.92E-03 | lb/lb PM10 | 7782505 |
| Chromium, hexavalent (& compounds) | | 4.05E-06 | lb/lb PM10 | 18540299 |
| Copper | | 4.88E-04 | lb/lb PM10 | 7440508 |
| Lead | | 8.60E-05 | lb/lb PM10 | 7439921 |
| Manganese | | 1.28E-03 | lb/lb PM10 | 7439965 |
| Mercury | | 2.30E-05 | lb/lb PM10 | 7439976 |
| Molybdenum trioxide | | 4.10E-05 | lb/lb PM10 | 1313275 |
| Nickel | | 6.40E-05 | lb/lb PM10 | 7440020 |
| Phosphorus | | 2.70E-03 | lb/lb PM10 | 7723140 |
| Selenium | | 9.00E-06 | lb/lb PM10 | 7782492 |
| Silver | | 1.24E-04 | lb/lb PM10 | 7440224 |
| SULFATES | | 1.71E-02 | lb/lb PM10 | 9960 |
| Thallium | | 1.90E-05 | lb/lb PM10 | 7440280 |
| Vanadium (fume or dust) | | 1.26E-04 | lb/lb PM10 | 7440622 |
| Zinc | | 3.70E-03 | lb/lb PM10 | 7440666 |

**Almond Processing Dust Emissions**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **District Toxic Profile ID** | 58 | | | | |
| **Description** | Almond Processing Dust Emissions | | | | |
| **Source** | Emission factors are derived from the 1997 soil profile, "Composite of three almond orchards" from EPA Speciate 4.0., test data from Central Valley CA Almond Growers. | | | | |
|  | | | | | |
| **Pollutant Name** | | **Emission Factor** | **Emission Factor Units** | **CAS#** |
| Aluminum | | 9.58E-02 | lb/lb PM10 | 7429905 |
| Ammonia | | 1.98E-03 | lb/lb PM10 | 7664417 |
| Antimony | | 1.02E-04 | lb/lb PM10 | 7440360 |
| Arsenic | | 5.00E-06 | lb/lb PM10 | 7440382 |
| Barium | | 8.75E-04 | lb/lb PM10 | 7440393 |
| Bromine | | 1.10E-05 | lb/lb PM10 | 7726956 |
| Cadmium | | 3.00E-06 | lb/lb PM10 | 7440439 |
| Chromium | | 1.20E-05 | lb/lb PM10 | 7440473 |
| Chromium, hexavalent (& compounds) | | 6.00E-07 | lb/lb PM10 | 18540299 |
| Cobalt | | 8.00E-06 | lb/lb PM10 | 7440484 |
| Copper | | 1.69E-04 | lb/lb PM10 | 7440508 |
| Lead | | 6.20E-05 | lb/lb PM10 | 7439921 |
| Manganese | | 1.04E-03 | lb/lb PM10 | 7439965 |
| Mercury | | 1.30E-05 | lb/lb PM10 | 7439976 |
| Nickel | | 1.20E-05 | lb/lb PM10 | 7440020 |
| Phosphorus | | 1.57E-03 | lb/lb PM10 | 7723140 |
| Selenium | | 3.00E-06 | lb/lb PM10 | 7782492 |
| Silver | | 3.00E-06 | lb/lb PM10 | 7440224 |
| SULFATES | | 1.01E-02 | lb/lb PM10 | 9960 |
| Vanadium (fume or dust) | | 4.20E-05 | lb/lb PM10 | 7440622 |
| Zinc | | 1.58E-03 | lb/lb PM10 | 7440666 |

**Cotton Gin - PM Speciation**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **District Toxic Profile ID** | 139 | | | | |
| **Description** | Cotton Gin - PM Speciation | | | | |
| **Source** | based source tests performed by the California Cotton Ginners Association in response to AB2588 (1991) | | | | |
|  | | | | | |
| **Pollutant Name** | | **Emission Factor** | **Emission Factor Units** | **CAS#** |
| Arsenic | | 5.70E-06 | lbs/lb PM | 7440382 |
| Cadmium | | 1.00E-06 | lbs/lb PM | 7440439 |
| Chromium, hexavalent (& compounds) | | 3.39E-07 | lbs/lb PM | 18540299 |
| Copper | | 2.10E-05 | lbs/lb PM | 7440508 |
| Lead | | 1.60E-05 | lbs/lb PM | 7439921 |
| Manganese | | 1.00E-04 | lbs/lb PM | 7439965 |
| Nickel | | 7.00E-06 | lbs/lb PM | 7440020 |
| Selenium | | 1.00E-05 | lbs/lb PM | 7782492 |
| Zinc | | 4.70E-05 | lbs/lb PM | 7440666 |

**Feed Pelleting, Milling, Loadout lb**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **District Toxic Profile ID** | 209 | | | | |
| **Description** | Feed Pelleting, Milling, Loadout lb | | | | |
| **Source** | Emission factors are based on ARB approved California Grain & Feed Association pooled source test (Dec. 1990) | | | | |
|  | | | | | |
| **Pollutant Name** | | **Emission Factor** | **Emission Factor Units** | **CAS#** |
| Cadmium | | 4.28E-07 | lb/lb PM | 7440439 |
| Chromium | | 3.32E-06 | lb/lb PM | 7440473 |
| Chromium, hexavalent (& compounds) | | 1.66E-07 | lb/lb PM | 18540299 |
| Copper | | 1.84E-05 | lb/lb PM | 7440508 |
| Lead | | 4.77E-07 | lb/lb PM | 7439921 |
| Manganese | | 4.45E-05 | lb/lb PM | 7439965 |
| Nickel | | 8.90E-06 | lb/lb PM | 7440020 |
| Zinc | | 5.50E-05 | lb/lb PM | 7440666 |

**Feed Receiving lb**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **District Toxic Profile ID** | 210 | | | | |
| **Description** | Feed Receiving lb | | | | |
| **Source** | Emission factors are based on ARB approved California Grain & Feed Association pooled source test (Dec. 1990) | | | | |
|  | | | | | |
| **Pollutant Name** | | **Emission Factor** | **Emission Factor Units** | **CAS#** |
| Cadmium | | 1.29E-07 | lb/lb PM | 7440439 |
| Chromium | | 1.21E-06 | lb/lb PM | 7440473 |
| Chromium, hexavalent (& compounds) | | 6.05E-08 | lb/lb PM | 18540299 |
| Copper | | 1.30E-05 | lb/lb PM | 7440508 |
| Lead | | 8.15E-07 | lb/lb PM | 7439921 |
| Manganese | | 4.40E-05 | lb/lb PM | 7439965 |
| Nickel | | 6.40E-06 | lb/lb PM | 7440020 |
| Zinc | | 4.78E-05 | lb/lb PM | 7440666 |

**Flour Mill Loadout lb**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **District Toxic Profile ID** | 212 | | | | |
| **Description** | Flour Mill Loadout lb | | | | |
| **Source** | Emission factors are based on ARB approved California Grain & Feed Association pooled source test (Dec. 1990) | | | | |
|  | | | | | |
| **Pollutant Name** | | **Emission Factor** | **Emission Factor Units** | **CAS#** |
| Copper | | 6.25E-06 | lb/lb PM | 7440508 |
| Manganese | | 7.20E-05 | lb/lb PM | 7439965 |
| Zinc | | 3.57E-05 | lb/lb PM | 7440666 |

**Flour Mill Receiving lb**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **District Toxic Profile ID** | 211 | | | | |
| **Description** | Flour Mill Receiving lb | | | | |
| **Source** | Emission factors are based on ARB approved California Grain & Feed Association pooled source test (Dec. 1990) | | | | |
|  | | | | | |
| **Pollutant Name** | | **Emission Factor** | **Emission Factor Units** | **CAS#** |
| Copper | | 5.54E-06 | lb/lb PM | 7440508 |
| Manganese | | 5.47E-05 | lb/lb PM | 7439965 |
| Zinc | | 2.97E-05 | lb/lb PM | 7440666 |

**Grain Cleaning lb**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **District Toxic Profile ID** | 96 | | | | |
| **Description** | Grain Cleaning lb | | | | |
| **Source** | Emission factors are based on ARB approved California Grain & Feed Association pooled source test and AP42 section 9.9.1. CONVERSION FACTOR for process rate (tons) into tons dust is (0.0823 lb PM10/2000)/ton grain | | | | |
|  | | | | | |
| **Pollutant Name** | | **Emission Factor** | **Emission Factor Units** | **CAS#** |
| Cadmium | | 3.60E-07 | lb/lb PM10 | 7440439 |
| Copper | | 1.59E-05 | lb/lb PM10 | 7440508 |
| Lead | | 9.55E-07 | lb/lb PM10 | 7439921 |
| Manganese | | 3.82E-05 | lb/lb PM10 | 7439965 |
| Nickel | | 6.96E-06 | lb/lb PM10 | 7440020 |
| Zinc | | 4.80E-05 | lb/lb PM10 | 7440666 |

**Grain Elevator Receiving lb**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **District Toxic Profile ID** | 213 | | | | |
| **Description** | Grain Elevator Receiving lb | | | | |
| **Source** | Emission factors are based on ARB approved California Grain & Feed Association pooled source test (Dec. 1990) | | | | |
|  | | | | | |
| **Pollutant Name** | | **Emission Factor** | **Emission Factor Units** | **CAS#** |
| Copper | | 5.47E-06 | lb/lb PM | 7440508 |
| Manganese | | 3.20E-05 | lb/lb PM | 7439965 |
| Zinc | | 2.07E-05 | lb/lb PM | 7440666 |

**Grain Loadout lb**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **District Toxic Profile ID** | 214 | | | | |
| **Description** | Grain Loadout lb | | | | |
| **Source** | Emission factors are based on ARB approved California Grain & Feed Association pooled source test (Dec. 1990) | | | | |
|  | | | | | |
| **Pollutant Name** | | **Emission Factor** | **Emission Factor Units** | **CAS#** |
| Chromium | | 1.20E-06 | lb/lb PM | 7440473 |
| Chromium, hexavalent (& compounds) | | 6.00E-08 | lb/lb PM | 18540299 |
| Copper | | 2.87E-06 | lb/lb PM | 7440508 |
| Lead | | 2.77E-06 | lb/lb PM | 7439921 |
| Manganese | | 1.87E-05 | lb/lb PM | 7439965 |
| Zinc | | 1.06E-05 | lb/lb PM | 7440666 |

***External Combustion***

**Auto Parts Bayco Cleaning Oven Material**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **District Toxic Profile ID** | 110 | | | | |
| **Description** | Auto Parts Bayco Cleaning Oven Material | | | | |
| **Source** | These emission factors are derived from a 1991 source test from Champion Auto Parts Toxic Environmental Impact Report #40028 | | | | |
|  | | | | | |
| **Pollutant Name** | | **Emission Factor** | **Emission Factor Units** | **CAS#** |
| Arsenic | | 1.29E-08 | lb/lb material burned | 7440382 |
| Benzene | | 2.10E-06 | lb/lb material burned | 71432 |
| Beryllium | | 1.69E-08 | lb/lb material burned | 7440417 |
| Cadmium | | 1.69E-06 | lb/lb material burned | 7440439 |
| Chromium, hexavalent (& compounds) | | 6.37E-10 | lb/lb material burned | 18540299 |
| Copper | | 5.22E-07 | lb/lb material burned | 7440508 |
| Formaldehyde | | 1.76E-08 | lb/lb material burned | 50000 |
| Hydrochloric acid | | 2.20E-05 | lb/lb material burned | 7647010 |
| Lead | | 2.42E-07 | lb/lb material burned | 7439921 |
| Manganese | | 1.50E-08 | lb/lb material burned | 7439965 |
| Mercury | | 2.05E-08 | lb/lb material burned | 7439976 |
| Nickel | | 1.69E-08 | lb/lb material burned | 7440020 |
| Selenium | | 2.44E-09 | lb/lb material burned | 7782492 |
| Vinyl chloride | | 1.42E-08 | lb/lb material burned | 75014 |
| Zinc | | 2.13E-07 | lb/lb material burned | 7440666 |

**Auto Parts Bayco Cleaning Oven NG use**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **District Toxic Profile ID** | 187 | | | | |
| **Description** | Auto Parts Bayco Cleaning Oven NG use | | | | |
| **Source** | These emission factors are derived from a 1991 source test from Champion Auto Parts Toxic Environmental Impact Report #40028 and Ventura County emission factors for combustion of Natural Gas | | | | |
|  | | | | | |
| **Pollutant Name** | | **Emission Factor** | **Emission Factor Units** | **CAS#** |
| 1,2,3,4,6,7,8-Heptachlorodibenzofuran | | 1.49E-07 | lbs/MMscf | 67562394 |
| 1,2,3,4,6,7,8-Heptachlorodibenzo-p-dioxin | | 2.09E-07 | lbs/MMscf | 35822469 |
| 1,2,3,4,7,8,9-Heptachlorodibenzofuran | | 2.43E-08 | lbs/MMscf | 55673897 |
| 1,2,3,4,7,8-Hexachlorodibenzofuran | | 2.94E-07 | lbs/MMscf | 70648269 |
| 1,2,3,4,7,8-Hexachlorodibenzo-p-dioxin | | 1.66E-08 | lbs/MMscf | 39227286 |
| 1,2,3,6,7,8-Hexachlorodibenzofuran | | 2.02E-07 | lbs/MMscf | 57117449 |
| 1,2,3,6,7,8-Hexachlorodibenzo-p-dioxin | | 3.45E-08 | lbs/MMscf | 57653857 |
| 1,2,3,7,8,9-Hexachlorodibenzofuran | | 4.41E-08 | lbs/MMscf | 72918219 |
| 1,2,3,7,8,9-Hexachlorodibenzo-p-dioxin | | 1.84E-08 | lbs/MMscf | 19408743 |
| 1,2,3,7,8-Pentachlorodibenzofuran | | 9.92E-07 | lbs/MMscf | 57117416 |
| 1,2,3,7,8-Pentachlorodibenzo-p-dioxin | | 3.72E-08 | lbs/MMscf | 40321764 |
| 2,3,4,6,7,8-Hexachlorodibenzofuran | | 2.48E-07 | lbs/MMscf | 60851345 |
| 2,3,4,7,8-Pentachlorodibenzofuran | | 1.55E-06 | lbs/MMscf | 57117314 |
| 2,3,7,8-Tetrachlorodibenzofuran | | 5.75E-06 | lbs/MMscf | 51207319 |
| 2,3,7,8-Tetrachlorodibenzo-p-dioxin | | 1.89E-08 | lbs/MMscf | 1746016 |
| Acetaldehyde | | 5.35E-06 | lbs/MMscf | 75070 |
| Acrolein | | 8.00E-04 | lbs/MMscf | 107028 |
| Benz[a]anthracene | | 9.99E-05 | lbs/MMscf | 56553 |
| Benzene | | 1.57E-04 | lbs/MMscf | 71432 |
| Benzo[a]pyrene | | 2.20E-05 | lbs/MMscf | 50328 |
| Benzo[b]fluoranthene | | 8.85E-05 | lbs/MMscf | 205992 |
| Benzo[k]fluoranthene | | 4.39E-05 | lbs/MMscf | 207089 |
| Dibenz[a,h]anthracene | | 7.48E-06 | lbs/MMscf | 53703 |
| Dibenzofurans (chlorinated) {PCDFs} | | 8.24E-08 | lbs/MMscf | 1080 |
| Dioxins, total, with individ. isomers also reported {PCDDs} | | 3.14E-07 | lbs/MMscf | 1085 |
| Ethyl benzene | | 2.00E-03 | lbs/MMscf | 100414 |
| Formaldehyde | | 1.08E-04 | lbs/MMscf | 50000 |
| Hexane | | 1.30E-03 | lbs/MMscf | 110543 |
| Indeno[1,2,3-cd]pyrene | | 2.43E-05 | lbs/MMscf | 193395 |
| Naphthalene | | 9.19E-05 | lbs/MMscf | 91203 |
| Polychlorinated biphenyls (PCBs) | | 2.33E-05 | lbs/MMscf | 1336363 |
| Toluene | | 1.87E-04 | lbs/MMscf | 108883 |
| Xylenes (mixed) | | 8.53E-04 | lbs/MMscf | 1330207 |

**Cotton Gin - NG Combustion**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **District Toxic Profile ID** | 140 | | | | |
| **Description** | Cotton Gin - NG Combustion | | | | |
| **Source** | The emission factors are from the May 2001 update of VCAPCD AB 2588 Combustion Emission Factors (< 10 Mmbtu/hr, External). | | | | |
|  | | | | | |
| **Pollutant Name** | | **Emission Factor** | **Emission Factor Units** | **CAS#** |
| Acetaldehyde | | 4.30E-03 | lb/MMscf | 75070 |
| Acrolein | | 2.70E-03 | lb/MMscf | 107028 |
| Benzene | | 8.00E-03 | lb/MMscf | 71432 |
| Ethyl benzene | | 9.50E-03 | lb/MMscf | 100414 |
| Formaldehyde | | 1.70E-02 | lb/MMscf | 50000 |
| Hexane | | 6.30E-03 | lb/MMscf | 110543 |
| Naphthalene | | 3.00E-04 | lb/MMscf | 91203 |
| PAHs, total, w/o individ. components reported | | 1.00E-04 | lb/MMscf | 1151 |
| Propylene | | 7.31E-01 | lb/MMscf | 115071 |
| Toluene | | 3.66E-02 | lb/MMscf | 108883 |
| Xylenes (mixed) | | 2.72E-02 | lb/MMscf | 1330207 |

**Crematory Animal**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **District Toxic Profile ID** | 22 | | | | |
| **Description** | Crematory Animal | | | | |
| **Source** | Emission factors are derived from SDAPCD's 1993 profile "Crematory and Incinerator Operations", test data from 1990 UCSD Medical Center AB2588 Source Testing. | | | | |
|  | | | | | |
| **Pollutant Name** | | **Emission Factor** | **Emission Factor Units** | **CAS#** |
| Acetaldehyde | | 1.50E-03 | lb/tons of animal cremated | 75070 |
| Arsenic | | 5.80E-04 | lb/tons of animal cremated | 7440382 |
| Benzene | | 7.20E-04 | lb/tons of animal cremated | 71432 |
| Beryllium | | 2.00E-05 | lb/tons of animal cremated | 7440417 |
| Cadmium | | 1.60E-04 | lb/tons of animal cremated | 7440439 |
| Chromium | | 3.20E-04 | lb/tons of animal cremated | 7440473 |
| Chromium, hexavalent (& compounds) | | 1.90E-04 | lb/tons of animal cremated | 18540299 |
| Copper | | 4.00E-04 | lb/tons of animal cremated | 7440508 |
| Formaldehyde | | 4.00E-04 | lb/tons of animal cremated | 50000 |
| Hydrochloric acid | | 8.60E-01 | lb/tons of animal cremated | 7647010 |
| Hydrogen fluoride | | 7.80E-03 | lb/tons of animal cremated | 7664393 |
| Lead | | 9.80E-04 | lb/tons of animal cremated | 7439921 |
| Mercury | | 4.80E-02 | lb/tons of animal cremated | 7439976 |
| Nickel | | 5.70E-04 | lb/tons of animal cremated | 7440020 |
| PAHs, total, w/o individ. components reported | | 5.20E-05 | lb/tons of animal cremated | 1151 |
| Selenium | | 6.50E-04 | lb/tons of animal cremated | 7782492 |
| Toluene | | 9.90E-03 | lb/tons of animal cremated | 108883 |
| Xylenes (mixed) | | 2.80E-03 | lb/tons of animal cremated | 1330207 |
| Zinc | | 5.20E-04 | lb/tons of animal cremated | 7440666 |

**Crematory Human-body**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **District Toxic Profile ID** | 250 | | | | |
| **Description** | Crematory Human-body | | | | |
| **Source** | Emissions factors (lb/body cremated) are from Table 19 "Point Source Emission Factors", Crematory Major Group (pg. 127) in the December 1999 CARB research report, Development Of Toxics Emission Factors From Source Test Data Collected Under The Air Toxics Hot Spots Program Part II Final Report Volume I, test data from a 1993 creamatory source test. Average weight of cremation assumed to be 80kg or 176 pounds. | | | | |
|  | | | | | |
| **Pollutant Name** | | **Emission Factor** | **Emission Factor Units** | **CAS#** |
| 1,2,3,4,6,7,8-Heptachlorodibenzofuran | | 1.15E-08 | lb/body | 67562394 |
| 1,2,3,4,6,7,8-Heptachlorodibenzo-p-dioxin | | 8.37E-09 | lb/body | 35822469 |
| 1,2,3,4,7,8,9-Heptachlorodibenzofuran | | 7.76E-10 | lb/body | 55673897 |
| 1,2,3,4,7,8-Hexachlorodibenzofuran | | 1.97E-09 | lb/body | 70648269 |
| 1,2,3,4,7,8-Hexachlorodibenzo-p-dioxin | | 6.26E-10 | lb/body | 39227286 |
| 1,2,3,6,7,8-Hexachlorodibenzofuran | | 1.97E-09 | lb/body | 57117449 |
| 1,2,3,6,7,8-Hexachlorodibenzo-p-dioxin | | 9.51E-10 | lb/body | 57653857 |
| 1,2,3,7,8,9-Hexachlorodibenzofuran | | 3.72E-09 | lb/body | 72918219 |
| 1,2,3,7,8,9-Hexachlorodibenzo-p-dioxin | | 1.28E-09 | lb/body | 19408743 |
| 1,2,3,7,8-Pentachlorodibenzofuran | | 6.74E-10 | lb/body | 57117416 |
| 1,2,3,7,8-Pentachlorodibenzo-p-dioxin | | 4.42E-10 | lb/body | 40321764 |
| 2,3,4,6,7,8-Hexachlorodibenzofuran | | 7.42E-10 | lb/body | 60851345 |
| 2,3,4,7,8-Pentachlorodibenzofuran | | 1.74E-09 | lb/body | 57117314 |
| 2,3,7,8-Tetrachlorodibenzofuran | | 8.01E-10 | lb/body | 51207319 |
| 2,3,7,8-Tetrachlorodibenzo-p-dioxin | | 1.50E-10 | lb/body | 1746016 |
| Acenaphthene | | 1.16E-07 | lb/body | 83329 |
| Acenaphthylene | | 8.38E-08 | lb/body | 208968 |
| Acetaldehyde | | 1.39E-04 | lb/body | 75070 |
| Anthracene | | 2.50E-07 | lb/body | 120127 |
| Arsenic | | 6.16E-05 | lb/body | 7440382 |
| Barium | | 2.60E-05 | lb/body | 7440393 |
| Benz[a]anthracene | | 1.30E-08 | lb/body | 56553 |
| Benzo[a]pyrene | | 6.60E-08 | lb/body | 50328 |
| Benzo[b]fluoranthene | | 1.84E-08 | lb/body | 205992 |
| Benzo[g,h,i]perylene | | 6.18E-08 | lb/body | 191242 |
| Benzo[k]fluoranthene | | 1.46E-08 | lb/body | 207089 |
| Beryllium | | 2.60E-06 | lb/body | 7440417 |
| Cadmium | | 1.02E-05 | lb/body | 7440439 |
| Chromium | | 4.27E-05 | lb/body | 7440473 |
| Chromium, hexavalent (& compounds) | | 1.96E-05 | lb/body | 18540299 |
| Chrysene | | 3.03E-08 | lb/body | 218019 |
| Cobalt | | 1.36E-05 | lb/body | 7440484 |
| Copper | | 2.92E-05 | lb/body | 7440508 |
| Dibenz[a,h]anthracene | | 1.36E-08 | lb/body | 53703 |
| Fluoranthene | | 1.52E-07 | lb/body | 206440 |
| Fluorene | | 3.39E-07 | lb/body | 86737 |
| Formaldehyde | | 2.99E-05 | lb/body | 50000 |
| Hydrochloric acid | | 9.47E-02 | lb/body | 7647010 |
| Hydrogen fluoride | | 1.41E-03 | lb/body | 7664393 |
| Indeno[1,2,3-cd]pyrene | | 1.46E-08 | lb/body | 193395 |
| Lead | | 6.29E-05 | lb/body | 7439921 |
| Mercury | | 4.99E-03 | lb/body | 7439976 |
| Naphthalene | | 6.78E-05 | lb/body | 91203 |
| Nickel | | 3.83E-05 | lb/body | 7440020 |
| Phenanthrene | | 1.78E-06 | lb/body | 85018 |
| Pyrene | | 1.64E-07 | lb/body | 129000 |
| Selenium | | 4.48E-05 | lb/body | 7782492 |
| Silver | | 1.23E-05 | lb/body | 7440224 |
| Zinc | | 4.06E-04 | lb/body | 7440666 |

**Crematory Human-tons**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **District Toxic Profile ID** | 109 | | | | |
| **Description** | Crematory Human-tons | | | | |
| **Source** | Emissions factors (lb/body cremated) are from Table 19 "Point Source Emission Factors", Crematory Major Group (pg. 127) in the December 1999 CARB research report, Development Of Toxics Emission Factors From Source Test Data Collected Under The Air Toxics Hot Spots Program Part II Final Report Volume I, test data from a 1993 creamatory source test. Average weight of cremation assumed to be 80kg or 176 pounds. | | | | |
|  | | | | | |
| **Pollutant Name** | | **Emission Factor** | **Emission Factor Units** | **CAS#** |
| 1,2,3,4,6,7,8-Heptachlorodibenzofuran | | 1.31E-07 | lb/ton material | 67562394 |
| 1,2,3,4,6,7,8-Heptachlorodibenzo-p-dioxin | | 9.51E-08 | lb/ton material | 35822469 |
| 1,2,3,4,7,8,9-Heptachlorodibenzofuran | | 8.82E-09 | lb/ton material | 55673897 |
| 1,2,3,4,7,8-Hexachlorodibenzofuran | | 2.24E-08 | lb/ton material | 70648269 |
| 1,2,3,4,7,8-Hexachlorodibenzo-p-dioxin | | 7.11E-09 | lb/ton material | 39227286 |
| 1,2,3,6,7,8-Hexachlorodibenzofuran | | 2.24E-08 | lb/ton material | 57117449 |
| 1,2,3,6,7,8-Hexachlorodibenzo-p-dioxin | | 1.08E-08 | lb/ton material | 57653857 |
| 1,2,3,7,8,9-Hexachlorodibenzofuran | | 4.23E-08 | lb/ton material | 72918219 |
| 1,2,3,7,8,9-Hexachlorodibenzo-p-dioxin | | 1.45E-08 | lb/ton material | 19408743 |
| 1,2,3,7,8-Pentachlorodibenzofuran | | 7.66E-09 | lb/ton material | 57117416 |
| 1,2,3,7,8-Pentachlorodibenzo-p-dioxin | | 5.02E-09 | lb/ton material | 40321764 |
| 2,3,4,6,7,8-Hexachlorodibenzofuran | | 8.43E-09 | lb/ton material | 60851345 |
| 2,3,4,7,8-Pentachlorodibenzofuran | | 1.98E-08 | lb/ton material | 57117314 |
| 2,3,7,8-Tetrachlorodibenzofuran | | 9.10E-09 | lb/ton material | 51207319 |
| 2,3,7,8-Tetrachlorodibenzo-p-dioxin | | 1.70E-09 | lb/ton material | 1746016 |
| Acenaphthene | | 1.32E-06 | lb/ton material | 83329 |
| Acenaphthylene | | 9.52E-07 | lb/ton material | 208968 |
| Acetaldehyde | | 1.58E-03 | lb/ton material | 75070 |
| Anthracene | | 2.84E-06 | lb/ton material | 120127 |
| Arsenic | | 7.00E-04 | lb/ton material | 7440382 |
| Barium | | 2.95E-04 | lb/ton material | 7440393 |
| Benz[a]anthracene | | 1.48E-07 | lb/ton material | 56553 |
| Benzo[a]pyrene | | 7.50E-07 | lb/ton material | 50328 |
| Benzo[b]fluoranthene | | 2.09E-07 | lb/ton material | 205992 |
| Benzo[g,h,i]perylene | | 7.02E-07 | lb/ton material | 191242 |
| Benzo[k]fluoranthene | | 1.66E-07 | lb/ton material | 207089 |
| Beryllium | | 2.95E-05 | lb/ton material | 7440417 |
| Cadmium | | 1.16E-04 | lb/ton material | 7440439 |
| Chromium | | 4.85E-04 | lb/ton material | 7440473 |
| Chromium, hexavalent (& compounds) | | 2.23E-04 | lb/ton material | 18540299 |
| Chrysene | | 3.44E-07 | lb/ton material | 218019 |
| Cobalt | | 1.55E-04 | lb/ton material | 7440484 |
| Copper | | 3.32E-04 | lb/ton material | 7440508 |
| Dibenz[a,h]anthracene | | 1.55E-07 | lb/ton material | 53703 |
| Fluoranthene | | 1.73E-06 | lb/ton material | 206440 |
| Fluorene | | 3.85E-06 | lb/ton material | 86737 |
| Formaldehyde | | 3.40E-04 | lb/ton material | 50000 |
| Hydrochloric acid | | 1.08E+00 | lb/ton material | 7647010 |
| Hydrogen fluoride | | 1.60E-02 | lb/ton material | 7664393 |
| Indeno[1,2,3-cd]pyrene | | 1.66E-07 | lb/ton material | 193395 |
| Lead | | 7.15E-04 | lb/ton material | 7439921 |
| Mercury | | 5.67E-02 | lb/ton material | 7439976 |
| Naphthalene | | 7.70E-04 | lb/ton material | 91203 |
| Nickel | | 4.35E-04 | lb/ton material | 7440020 |
| Phenanthrene | | 2.02E-05 | lb/ton material | 85018 |
| Pyrene | | 1.86E-06 | lb/ton material | 129000 |
| Selenium | | 5.09E-04 | lb/ton material | 7782492 |
| Silver | | 1.40E-04 | lb/ton material | 7440224 |
| Zinc | | 4.61E-03 | lb/ton material | 7440666 |

**Diesel External Combustion**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **District Toxic Profile ID** | 2 | | | | |
| **Description** | Diesel External Combustion | | | | |
| **Source** | The emission factors are from the table "Diesel Combustion Factors" (pg. 3, external combustion column) in the May 2001 update of VCAPCD AB 2588 Combustion Emission Factors. | | | | |
|  | | | | | |
| **Pollutant Name** | | **Emission Factor** | **Emission Factor Units** | **CAS#** |
| 1,3-Butadiene | | 1.48E-02 | lb/1000 gals | 106990 |
| Acetaldehyde | | 3.51E-01 | lb/1000 gals | 75070 |
| Acrolein | | 3.51E-01 | lb/1000 gals | 107028 |
| Arsenic | | 1.60E-03 | lb/1000 gals | 7440382 |
| Benzene | | 4.40E-03 | lb/1000 gals | 71432 |
| Cadmium | | 1.50E-03 | lb/1000 gals | 7440439 |
| Chlorobenzene | | 2.00E-04 | lb/1000 gals | 108907 |
| Chromium | | 6.00E-04 | lb/1000 gals | 7440473 |
| Chromium, hexavalent (& compounds) | | 1.00E-04 | lb/1000 gals | 18540299 |
| Copper | | 4.10E-03 | lb/1000 gals | 7440508 |
| Ethyl benzene | | 2.00E-04 | lb/1000 gals | 100414 |
| Formaldehyde | | 3.51E-01 | lb/1000 gals | 50000 |
| Hexane | | 3.50E-03 | lb/1000 gals | 110543 |
| Hydrochloric acid | | 1.86E-01 | lb/1000 gals | 7647010 |
| Lead | | 8.30E-03 | lb/1000 gals | 7439921 |
| Manganese | | 3.10E-03 | lb/1000 gals | 7439965 |
| Mercury | | 2.00E-03 | lb/1000 gals | 7439976 |
| Naphthalene | | 5.30E-03 | lb/1000 gals | 91203 |
| Nickel | | 3.90E-03 | lb/1000 gals | 7440020 |
| PAHs, total, with individ. components also reported | | 4.45E-02 | lb/1000 gals | 1150 |
| Propylene | | 1.00E-02 | lb/1000 gals | 115071 |
| Selenium | | 2.20E-03 | lb/1000 gals | 7782492 |
| Toluene | | 4.40E-03 | lb/1000 gals | 108883 |
| Xylenes (mixed) | | 1.60E-03 | lb/1000 gals | 1330207 |
| Zinc | | 2.24E-02 | lb/1000 gals | 7440666 |

**Digester Gas External Comb (Farm waste, not Dairy)**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **District Toxic Profile ID** | 230 | | | | |
| **Description** | Digester Gas External Comb (Farm waste, not Dairy) | | | | |
| **Source** | The emission factors are from the table, "Digester Gas External and Internal Combustion Factors as developed by San Diego Country Air Pollution Control District" in the November 1993 memo from SDAPCD. | | | | |
|  | | | | | |
| **Pollutant Name** | | **Emission Factor** | **Emission Factor Units** | **CAS#** |
| Ammonia | | 3.72E-03 | lbs/MMscf | 7664417 |
| Benzene | | 1.33E-03 | lbs/MMscf | 71432 |
| Chlorobenzene | | 3.08E-04 | lbs/MMscf | 108907 |
| Ethyl benzene | | 2.61E-02 | lbs/MMscf | 100414 |
| Formaldehyde | | 1.46E+00 | lbs/MMscf | 50000 |
| Hydrogen sulfide | | 1.17E+00 | lbs/MMscf | 7783064 |
| Methyl chloroform {1,1,1-TCA} | | 4.19E-03 | lbs/MMscf | 71556 |
| Methylene chloride {Dichloromethane} | | 8.67E-02 | lbs/MMscf | 75092 |
| Perchloroethylene {Tetrachloroethene} | | 2.43E-03 | lbs/MMscf | 127184 |
| Toluene | | 9.59E-03 | lbs/MMscf | 108883 |
| Vinyl chloride | | 1.32E-03 | lbs/MMscf | 75014 |
| Vinylidene chloride | | 3.08E-04 | lbs/MMscf | 75354 |
| Xylenes (mixed) | | 5.57E-02 | lbs/MMscf | 1330207 |

**Landfill Gas Ext Comb <10 MMBtu Def**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **District Toxic Profile ID** | 134 | | | | |
| **Description** | Landfill Gas Ext Comb <10 MMBtu Def | | | | |
| **Source** | Methane (Natural Gas) combustion emissions are from table, "Natural Gas Fired External Combustion Equipment" in the May 2001 report, VCAPCD AB 2588 Combustion Emission Factors. PAHs emission factor adjusted from table values to subtract Naphthalene portion. Methane content and destruction efficiency are from District defaults. Landfill gas speciation is derived from Table 2.4-1, "Default Concentrations For LFG Constituents For Landfills With Waste In Place On Or After 1992" in October 2008 AP42 Chapter 2 Solid Waste Disposal, Section 4 Municipal Solid Waste Landfills. | | | | |
|  | | | | | |
| **Pollutant Name** | | **Emission Factor** | **Emission Factor Units** | **CAS#** |
| 1,1,2,2-Tetrachloroethane | | 4.58E-03 | lb/MMscf burned | 79345 |
| 1,1,2-Trichloroethane | | 1.08E-03 | lb/MMscf burned | 79005 |
| 1,1-Dichloroethane | | 1.05E-02 | lb/MMscf burned | 75343 |
| 1,2,4-Trichlorobenzene | | 5.10E-05 | lb/MMscf burned | 120821 |
| 1,2,4-Trimethylbenzene | | 8.40E-03 | lb/MMscf burned | 95636 |
| 1,2-Dichloroethylene | | 5.64E-02 | lb/MMscf burned | 540590 |
| 1,3-Butadiene | | 4.58E-04 | lb/MMscf burned | 106990 |
| 1,4-Dioxane | | 3.73E-05 | lb/MMscf burned | 123911 |
| 2,2,4-Trimethylpentane | | 3.58E-03 | lb/MMscf burned | 540841 |
| Acetaldehyde | | 2.54E-03 | lb/MMscf burned | 75070 |
| Acetonitrile | | 1.16E-03 | lb/MMscf burned | 75058 |
| Acrolein | | 1.49E-03 | lb/MMscf burned | 107028 |
| Benzene | | 1.40E-02 | lb/MMscf burned | 71432 |
| Benzyl chloride | | 1.17E-04 | lb/MMscf burned | 100447 |
| Bromodichloromethane | | 7.34E-05 | lb/MMscf burned | 75274 |
| Bromoform | | 1.60E-04 | lb/MMscf burned | 75252 |
| Carbon disulfide | | 5.71E-04 | lb/MMscf burned | 75150 |
| Carbon monoxide | | 3.49E-02 | lb/MMscf burned | 630080 |
| Carbon tetrachloride | | 6.26E-05 | lb/MMscf burned | 56235 |
| Carbonyl sulfide | | 3.74E-04 | lb/MMscf burned | 463581 |
| Chlorinated fluorocarbon {CFC-113} | | 6.43E-04 | lb/MMscf burned | 76131 |
| Chlorobenzene | | 2.78E-03 | lb/MMscf burned | 108907 |
| Chlorodibromomethane | | 1.61E-04 | lb/MMscf burned | 124481 |
| Chlorodifluoromethane {Freon 22} | | 3.51E-03 | lb/MMscf burned | 75456 |
| Cumene | | 2.64E-03 | lb/MMscf burned | 98828 |
| Cyclohexane | | 4.34E-03 | lb/MMscf burned | 110827 |
| Dichlorodifluoromethane {Freon 12} | | 7.28E-03 | lb/MMscf burned | 75718 |
| Ethyl benzene | | 3.16E-02 | lb/MMscf burned | 100414 |
| Ethyl chloride {Chlorethane} | | 1.30E-02 | lb/MMscf burned | 75003 |
| Ethylene dibromide {EDB} | | 4.60E-05 | lb/MMscf burned | 106934 |
| Ethylene dichloride {EDC} | | 8.03E-04 | lb/MMscf burned | 107062 |
| Formaldehyde | | 9.37E-03 | lb/MMscf burned | 50000 |
| Hexachlorobutadiene | | 4.64E-05 | lb/MMscf burned | 87683 |
| Hexane | | 1.71E-02 | lb/MMscf burned | 110543 |
| Hydrogen sulfide | | 5.57E-02 | lb/MMscf burned | 7783064 |
| Isoprene, except from vegetative emission sources | | 5.74E-05 | lb/MMscf burned | 78795 |
| Isopropyl alcohol | | 5.52E-03 | lb/MMscf burned | 67630 |
| Mercury | | 1.25E-06 | lb/MMscf burned | 7439976 |
| Methyl bromide {Bromomethane} | | 1.02E-04 | lb/MMscf burned | 74839 |
| Methyl chloride {Chloromethane} | | 6.29E-04 | lb/MMscf burned | 74873 |
| Methyl chloroform {1,1,1-TCA} | | 1.65E-03 | lb/MMscf burned | 71556 |
| Methyl ethyl ketone {2-Butanone} | | 1.48E-02 | lb/MMscf burned | 78933 |
| Methyl isobutyl ketone {Hexone} | | 4.51E-03 | lb/MMscf burned | 108101 |
| Methyl tert-butyl ether | | 5.31E-04 | lb/MMscf burned | 1634044 |
| Methylene bromide | | 7.41E-06 | lb/MMscf burned | 74953 |
| Methylene chloride {Dichloromethane} | | 2.67E-02 | lb/MMscf burned | 75092 |
| Naphthalene | | 8.65E-04 | lb/MMscf burned | 91203 |
| PAHs, total, w/o individ. components reported | | 5.50E-05 | lb/MMscf burned | 1151 |
| p-Dichlorobenzene | | 7.05E-03 | lb/MMscf burned | 106467 |
| Perchloroethylene {Tetrachloroethene} | | 1.72E-02 | lb/MMscf burned | 127184 |
| Propylene | | 4.09E-01 | lb/MMscf burned | 115071 |
| Styrene | | 2.18E-03 | lb/MMscf burned | 100425 |
| Toluene | | 1.59E-01 | lb/MMscf burned | 108883 |
| Trichloroethylene | | 5.55E-03 | lb/MMscf burned | 79016 |
| Vinyl chloride | | 4.53E-03 | lb/MMscf burned | 75014 |
| Vinylidene chloride | | 7.92E-04 | lb/MMscf burned | 75354 |
| Xylenes (mixed) | | 6.50E-02 | lb/MMscf burned | 1330207 |

**Landfill Gas Ext Comb 10-100 MMBtu Def**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **District Toxic Profile ID** | 235 | | | | |
| **Description** | Landfill Gas Ext Comb 10-100 MMBtu Def | | | | |
| **Source** | Methane (Natural Gas) combustion emissions are from table, "Natural Gas Fired External Combustion Equipment" in the May 2001 report, VCAPCD AB 2588 Combustion Emission Factors. PAHs emission factor adjusted from table values to subtract Naphthalene portion. Methane content and destruction efficiency are from District defaults. Landfill gas speciation is derived from Table 2.4-1, "Default Concentrations For LFG Constituents For Landfills With Waste In Place On Or After 1992" in October 2008 AP42 Chapter 2 Solid Waste Disposal, Section 4 Municipal Solid Waste Landfills. | | | | |
|  | | | | | |
| **Pollutant Name** | | **Emission Factor** | **Emission Factor Units** | **CAS#** |
| 1,1,2,2-Tetrachloroethane | | 4.58E-03 | lbs/MMscf | 79345 |
| 1,1,2-Trichloroethane | | 1.08E-03 | lbs/MMscf | 79005 |
| 1,1-Dichloroethane | | 1.05E-02 | lbs/MMscf | 75343 |
| 1,2,4-Trichlorobenzene | | 5.10E-05 | lbs/MMscf | 120821 |
| 1,2,4-Trimethylbenzene | | 8.40E-03 | lbs/MMscf | 95636 |
| 1,2-Dichloroethylene | | 5.64E-02 | lbs/MMscf | 540590 |
| 1,3-Butadiene | | 4.58E-04 | lbs/MMscf | 106990 |
| 1,4-Dioxane | | 3.73E-05 | lbs/MMscf | 123911 |
| 2,2,4-Trimethylpentane | | 3.58E-03 | lbs/MMscf | 540841 |
| Acetaldehyde | | 1.88E-03 | lbs/MMscf | 75070 |
| Acetonitrile | | 1.16E-03 | lbs/MMscf | 75058 |
| Acrolein | | 1.49E-03 | lbs/MMscf | 107028 |
| Benzene | | 1.28E-02 | lbs/MMscf | 71432 |
| Benzyl chloride | | 1.17E-04 | lbs/MMscf | 100447 |
| Bromodichloromethane | | 7.34E-05 | lbs/MMscf | 75274 |
| Bromoform | | 1.60E-04 | lbs/MMscf | 75252 |
| Carbon disulfide | | 5.71E-04 | lbs/MMscf | 75150 |
| Carbon monoxide | | 3.49E-02 | lbs/MMscf | 630080 |
| Carbon tetrachloride | | 6.26E-05 | lbs/MMscf | 56235 |
| Carbonyl sulfide | | 3.74E-04 | lbs/MMscf | 463581 |
| Chlorinated fluorocarbon {CFC-113} | | 6.43E-04 | lbs/MMscf | 76131 |
| Chlorobenzene | | 2.78E-03 | lbs/MMscf | 108907 |
| Chlorodibromomethane | | 1.61E-04 | lbs/MMscf | 124481 |
| Chlorodifluoromethane {Freon 22} | | 3.51E-03 | lbs/MMscf | 75456 |
| Cumene | | 2.64E-03 | lbs/MMscf | 98828 |
| Cyclohexane | | 4.34E-03 | lbs/MMscf | 110827 |
| Dichlorodifluoromethane {Freon 12} | | 7.28E-03 | lbs/MMscf | 75718 |
| Ethyl benzene | | 3.01E-02 | lbs/MMscf | 100414 |
| Ethyl chloride {Chlorethane} | | 1.30E-02 | lbs/MMscf | 75003 |
| Ethylene dibromide {EDB} | | 4.60E-05 | lbs/MMscf | 106934 |
| Ethylene dichloride {EDC} | | 8.03E-04 | lbs/MMscf | 107062 |
| Formaldehyde | | 6.78E-03 | lbs/MMscf | 50000 |
| Hexachlorobutadiene | | 4.64E-05 | lbs/MMscf | 87683 |
| Hexane | | 1.62E-02 | lbs/MMscf | 110543 |
| Hydrogen sulfide | | 5.57E-02 | lbs/MMscf | 7783064 |
| Isoprene, except from vegetative emission sources | | 5.74E-05 | lbs/MMscf | 78795 |
| Isopropyl alcohol | | 5.52E-03 | lbs/MMscf | 67630 |
| Mercury | | 1.25E-06 | lbs/MMscf | 7439976 |
| Methyl bromide {Bromomethane} | | 1.02E-04 | lbs/MMscf | 74839 |
| Methyl chloride {Chloromethane} | | 6.29E-04 | lbs/MMscf | 74873 |
| Methyl chloroform {1,1,1-TCA} | | 1.65E-03 | lbs/MMscf | 71556 |
| Methyl ethyl ketone {2-Butanone} | | 1.48E-02 | lbs/MMscf | 78933 |
| Methyl isobutyl ketone {Hexone} | | 4.51E-03 | lbs/MMscf | 108101 |
| Methyl tert-butyl ether | | 5.31E-04 | lbs/MMscf | 1634044 |
| Methylene bromide | | 7.41E-06 | lbs/MMscf | 74953 |
| Methylene chloride {Dichloromethane} | | 2.67E-02 | lbs/MMscf | 75092 |
| Naphthalene | | 8.65E-04 | lbs/MMscf | 91203 |
| PAHs, total, w/o individ. components reported | | 5.50E-05 | lbs/MMscf | 1151 |
| p-Dichlorobenzene | | 7.05E-03 | lbs/MMscf | 106467 |
| Perchloroethylene {Tetrachloroethene} | | 1.72E-02 | lbs/MMscf | 127184 |
| Propylene | | 2.99E-01 | lbs/MMscf | 115071 |
| Styrene | | 2.18E-03 | lbs/MMscf | 100425 |
| Toluene | | 1.53E-01 | lbs/MMscf | 108883 |
| Trichloroethylene | | 5.55E-03 | lbs/MMscf | 79016 |
| Vinyl chloride | | 4.53E-03 | lbs/MMscf | 75014 |
| Vinylidene chloride | | 7.92E-04 | lbs/MMscf | 75354 |
| Xylenes (mixed) | | 6.08E-02 | lbs/MMscf | 1330207 |

**Landfill Gas Ext Comb >100 MMBtu Def**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **District Toxic Profile ID** | 236 | | | | |
| **Description** | Landfill Gas Ext Comb >100 MMBtu Def | | | | |
| **Source** | Methane (Natural Gas) combustion emissions are from table, "Natural Gas Fired External Combustion Equipment" in the May 2001 report, VCAPCD AB 2588 Combustion Emission Factors. PAHs emission factor adjusted from table values to subtract Naphthalene portion. Methane content and destruction efficiency are from District defaults. Landfill gas speciation is derived from Table 2.4-1, "Default Concentrations For LFG Constituents For Landfills With Waste In Place On Or After 1992" in October 2008 AP42 Chapter 2 Solid Waste Disposal, Section 4 Municipal Solid Waste Landfills. | | | | |
|  | | | | | |
| **Pollutant Name** | | **Emission Factor** | **Emission Factor Units** | **CAS#** |
| 1,1,2,2-Tetrachloroethane | | 4.58E-03 | lbs/MMscf | 79345 |
| 1,1,2-Trichloroethane | | 1.08E-03 | lbs/MMscf | 79005 |
| 1,1-Dichloroethane | | 1.05E-02 | lbs/MMscf | 75343 |
| 1,2,4-Trichlorobenzene | | 5.10E-05 | lbs/MMscf | 120821 |
| 1,2,4-Trimethylbenzene | | 8.40E-03 | lbs/MMscf | 95636 |
| 1,2-Dichloroethylene | | 5.64E-02 | lbs/MMscf | 540590 |
| 1,3-Butadiene | | 4.58E-04 | lbs/MMscf | 106990 |
| 1,4-Dioxane | | 3.73E-05 | lbs/MMscf | 123911 |
| 2,2,4-Trimethylpentane | | 3.58E-03 | lbs/MMscf | 540841 |
| Acetaldehyde | | 6.69E-04 | lbs/MMscf | 75070 |
| Acetonitrile | | 1.16E-03 | lbs/MMscf | 75058 |
| Acrolein | | 4.40E-04 | lbs/MMscf | 107028 |
| Benzene | | 1.05E-02 | lbs/MMscf | 71432 |
| Benzyl chloride | | 1.17E-04 | lbs/MMscf | 100447 |
| Bromodichloromethane | | 7.34E-05 | lbs/MMscf | 75274 |
| Bromoform | | 1.60E-04 | lbs/MMscf | 75252 |
| Carbon disulfide | | 5.71E-04 | lbs/MMscf | 75150 |
| Carbon monoxide | | 3.49E-02 | lbs/MMscf | 630080 |
| Carbon tetrachloride | | 6.26E-05 | lbs/MMscf | 56235 |
| Carbonyl sulfide | | 3.74E-04 | lbs/MMscf | 463581 |
| Chlorinated fluorocarbon {CFC-113} | | 6.43E-04 | lbs/MMscf | 76131 |
| Chlorobenzene | | 2.78E-03 | lbs/MMscf | 108907 |
| Chlorodibromomethane | | 1.61E-04 | lbs/MMscf | 124481 |
| Chlorodifluoromethane {Freon 22} | | 3.51E-03 | lbs/MMscf | 75456 |
| Cumene | | 2.64E-03 | lbs/MMscf | 98828 |
| Cyclohexane | | 4.34E-03 | lbs/MMscf | 110827 |
| Dichlorodifluoromethane {Freon 12} | | 7.28E-03 | lbs/MMscf | 75718 |
| Ethyl benzene | | 2.74E-02 | lbs/MMscf | 100414 |
| Ethyl chloride {Chlorethane} | | 1.30E-02 | lbs/MMscf | 75003 |
| Ethylene dibromide {EDB} | | 4.60E-05 | lbs/MMscf | 106934 |
| Ethylene dichloride {EDC} | | 8.03E-04 | lbs/MMscf | 107062 |
| Formaldehyde | | 2.00E-03 | lbs/MMscf | 50000 |
| Hexachlorobutadiene | | 4.64E-05 | lbs/MMscf | 87683 |
| Hexane | | 1.43E-02 | lbs/MMscf | 110543 |
| Hydrogen sulfide | | 5.57E-02 | lbs/MMscf | 7783064 |
| Isoprene, except from vegetative emission sources | | 5.74E-05 | lbs/MMscf | 78795 |
| Isopropyl alcohol | | 5.52E-03 | lbs/MMscf | 67630 |
| Mercury | | 1.25E-06 | lbs/MMscf | 7439976 |
| Methyl bromide {Bromomethane} | | 1.02E-04 | lbs/MMscf | 74839 |
| Methyl chloride {Chloromethane} | | 6.29E-04 | lbs/MMscf | 74873 |
| Methyl chloroform {1,1,1-TCA} | | 1.65E-03 | lbs/MMscf | 71556 |
| Methyl ethyl ketone {2-Butanone} | | 1.48E-02 | lbs/MMscf | 78933 |
| Methyl isobutyl ketone {Hexone} | | 4.51E-03 | lbs/MMscf | 108101 |
| Methyl tert-butyl ether | | 5.31E-04 | lbs/MMscf | 1634044 |
| Methylene bromide | | 7.41E-06 | lbs/MMscf | 74953 |
| Methylene chloride {Dichloromethane} | | 2.67E-02 | lbs/MMscf | 75092 |
| Naphthalene | | 8.65E-04 | lbs/MMscf | 91203 |
| PAHs, total, w/o individ. components reported | | 5.50E-05 | lbs/MMscf | 1151 |
| p-Dichlorobenzene | | 7.05E-03 | lbs/MMscf | 106467 |
| Perchloroethylene {Tetrachloroethene} | | 1.72E-02 | lbs/MMscf | 127184 |
| Propylene | | 1.57E-02 | lbs/MMscf | 115071 |
| Styrene | | 2.18E-03 | lbs/MMscf | 100425 |
| Toluene | | 1.43E-01 | lbs/MMscf | 108883 |
| Trichloroethylene | | 5.55E-03 | lbs/MMscf | 79016 |
| Vinyl chloride | | 4.53E-03 | lbs/MMscf | 75014 |
| Vinylidene chloride | | 7.92E-04 | lbs/MMscf | 75354 |
| Xylenes (mixed) | | 5.32E-02 | lbs/MMscf | 1330207 |

**Landfill Gas Ext Comb Flare Default**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **District Toxic Profile ID** | 131 | | | | |
| **Description** | Landfill Gas Ext Comb Flare Default | | | | |
| **Source** | Methane (Natural Gas) combustion emissions are from table, "Natural Gas Fired External Combustion Equipment" in the May 2001 report, VCAPCD AB 2588 Combustion Emission Factors. PAHs emission factor adjusted from table values to subtract Naphthalene portion. Methane content and destruction efficiency are from District defaults. Landfill gas speciation is derived from Table 2.4-1, "Default Concentrations For LFG Constituents For Landfills With Waste In Place On Or After 1992" in October 2008 AP42 Chapter 2 Solid Waste Disposal, Section 4 Municipal Solid Waste Landfills. | | | | |
|  | | | | | |
| **Pollutant Name** | | **Emission Factor** | **Emission Factor Units** | **CAS#** |
| 1,1,2,2-Tetrachloroethane | | 4.58E-03 | lb/MMscf burned | 79345 |
| 1,1,2-Trichloroethane | | 1.08E-03 | lb/MMscf burned | 79005 |
| 1,1-Dichloroethane | | 1.05E-02 | lb/MMscf burned | 75343 |
| 1,2,4-Trichlorobenzene | | 5.10E-05 | lb/MMscf burned | 120821 |
| 1,2,4-Trimethylbenzene | | 8.40E-03 | lb/MMscf burned | 95636 |
| 1,2-Dichloroethylene | | 5.64E-02 | lb/MMscf burned | 540590 |
| 1,3-Butadiene | | 4.58E-04 | lb/MMscf burned | 106990 |
| 1,4-Dioxane | | 3.73E-05 | lb/MMscf burned | 123911 |
| 2,2,4-Trimethylpentane | | 3.58E-03 | lb/MMscf burned | 540841 |
| Acetaldehyde | | 2.38E-02 | lb/MMscf burned | 75070 |
| Acetonitrile | | 1.16E-03 | lb/MMscf burned | 75058 |
| Acrolein | | 5.50E-03 | lb/MMscf burned | 107028 |
| Benzene | | 9.70E-02 | lb/MMscf burned | 71432 |
| Benzyl chloride | | 1.17E-04 | lb/MMscf burned | 100447 |
| Bromodichloromethane | | 7.34E-05 | lb/MMscf burned | 75274 |
| Bromoform | | 1.60E-04 | lb/MMscf burned | 75252 |
| Carbon disulfide | | 5.71E-04 | lb/MMscf burned | 75150 |
| Carbon monoxide | | 3.49E-02 | lb/MMscf burned | 630080 |
| Carbon tetrachloride | | 6.26E-05 | lb/MMscf burned | 56235 |
| Carbonyl sulfide | | 3.74E-04 | lb/MMscf burned | 463581 |
| Chlorinated fluorocarbon {CFC-113} | | 6.43E-04 | lb/MMscf burned | 76131 |
| Chlorobenzene | | 2.78E-03 | lb/MMscf burned | 108907 |
| Chlorodibromomethane | | 1.61E-04 | lb/MMscf burned | 124481 |
| Chlorodifluoromethane {Freon 22} | | 3.51E-03 | lb/MMscf burned | 75456 |
| Cumene | | 2.64E-03 | lb/MMscf burned | 98828 |
| Cyclohexane | | 4.34E-03 | lb/MMscf burned | 110827 |
| Dichlorodifluoromethane {Freon 12} | | 7.28E-03 | lb/MMscf burned | 75718 |
| Ethyl benzene | | 8.21E-01 | lb/MMscf burned | 100414 |
| Ethyl chloride {Chlorethane} | | 1.30E-02 | lb/MMscf burned | 75003 |
| Ethylene dibromide {EDB} | | 4.60E-05 | lb/MMscf burned | 106934 |
| Ethylene dichloride {EDC} | | 8.03E-04 | lb/MMscf burned | 107062 |
| Formaldehyde | | 6.43E-01 | lb/MMscf burned | 50000 |
| Hexachlorobutadiene | | 4.64E-05 | lb/MMscf burned | 87683 |
| Hexane | | 2.96E-02 | lb/MMscf burned | 110543 |
| Hydrogen sulfide | | 5.57E-02 | lb/MMscf burned | 7783064 |
| Isoprene, except from vegetative emission sources | | 5.74E-05 | lb/MMscf burned | 78795 |
| Isopropyl alcohol | | 5.52E-03 | lb/MMscf burned | 67630 |
| Mercury | | 1.25E-06 | lb/MMscf burned | 7439976 |
| Methyl bromide {Bromomethane} | | 1.02E-04 | lb/MMscf burned | 74839 |
| Methyl chloride {Chloromethane} | | 6.29E-04 | lb/MMscf burned | 74873 |
| Methyl chloroform {1,1,1-TCA} | | 1.65E-03 | lb/MMscf burned | 71556 |
| Methyl ethyl ketone {2-Butanone} | | 1.48E-02 | lb/MMscf burned | 78933 |
| Methyl isobutyl ketone {Hexone} | | 4.51E-03 | lb/MMscf burned | 108101 |
| Methyl tert-butyl ether | | 5.31E-04 | lb/MMscf burned | 1634044 |
| Methylene bromide | | 7.41E-06 | lb/MMscf burned | 74953 |
| Methylene chloride {Dichloromethane} | | 2.67E-02 | lb/MMscf burned | 75092 |
| Naphthalene | | 6.75E-03 | lb/MMscf burned | 91203 |
| PAHs, total, w/o individ. components reported | | 1.65E-03 | lb/MMscf burned | 1151 |
| p-Dichlorobenzene | | 7.05E-03 | lb/MMscf burned | 106467 |
| Perchloroethylene {Tetrachloroethene} | | 1.72E-02 | lb/MMscf burned | 127184 |
| Propylene | | 1.35E+00 | lb/MMscf burned | 115071 |
| Styrene | | 2.18E-03 | lb/MMscf burned | 100425 |
| Toluene | | 1.71E-01 | lb/MMscf burned | 108883 |
| Trichloroethylene | | 5.55E-03 | lb/MMscf burned | 79016 |
| Vinyl chloride | | 4.53E-03 | lb/MMscf burned | 75014 |
| Vinylidene chloride | | 7.92E-04 | lb/MMscf burned | 75354 |
| Xylenes (mixed) | | 6.60E-02 | lb/MMscf burned | 1330207 |

**LPG External Combustion- <10 MMBtu/hr**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **District Toxic Profile ID** | 102 | | | | |
| **Description** | LPG External Combustion- <10 MMBtu/hr | | | | |
| **Source** | The emission factors are from the table, "Natural Gas Fired External Combustion Equipment" in the May 2001 report, VCAPCD AB 2588 Combustion Emission Factors and a conversion from NG to LPG using District factors. | | | | |
|  | | | | | |
| **Pollutant Name** | | **Emission Factor** | **Emission Factor Units** | **CAS#** |
| Acetaldehyde | | 4.04E-04 | lb/1000 gal LPG | 75070 |
| Acrolein | | 2.54E-04 | lb/1000 gal LPG | 107028 |
| Benzene | | 7.52E-04 | lb/1000 gal LPG | 71432 |
| Ethyl benzene | | 8.93E-04 | lb/1000 gal LPG | 100414 |
| Formaldehyde | | 1.60E-03 | lb/1000 gal LPG | 50000 |
| Hexane | | 5.92E-04 | lb/1000 gal LPG | 110543 |
| Naphthalene | | 2.82E-05 | lb/1000 gal LPG | 91203 |
| PAHs, total, w/o individ. components reported | | 9.40E-06 | lb/1000 gal LPG | 1151 |
| Propylene | | 6.87E-02 | lb/1000 gal LPG | 115071 |
| Toluene | | 3.44E-03 | lb/1000 gal LPG | 108883 |
| Xylenes (mixed) | | 2.56E-03 | lb/1000 gal LPG | 1330207 |

**LPG External Combustion- 10-100 MMBtu/hr**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **District Toxic Profile ID** | 103 | | | | |
| **Description** | LPG External Combustion- 10-100 MMBtu/hr | | | | |
| **Source** | The emission factors are from the table, "Natural Gas Fired External Combustion Equipment" in the May 2001 update of VCAPCD AB 2588 Combustion Emission Factors and a conversion from NG to LPG using District factors. | | | | |
|  | | | | | |
| **Pollutant Name** | | **Emission Factor** | **Emission Factor Units** | **CAS#** |
| Acetaldehyde | | 2.91E-04 | lb/1000 gal LPG | 75070 |
| Acrolein | | 2.54E-04 | lb/1000 gal LPG | 107028 |
| Benzene | | 5.45E-04 | lb/1000 gal LPG | 71432 |
| Ethyl benzene | | 6.49E-04 | lb/1000 gal LPG | 100414 |
| Formaldehyde | | 1.16E-03 | lb/1000 gal LPG | 50000 |
| Hexane | | 4.32E-04 | lb/1000 gal LPG | 110543 |
| Naphthalene | | 2.82E-05 | lb/1000 gal LPG | 91203 |
| PAHs, total, w/o individ. components reported | | 9.40E-06 | lb/1000 gal LPG | 1151 |
| Propylene | | 4.98E-02 | lb/1000 gal LPG | 115071 |
| Toluene | | 2.49E-03 | lb/1000 gal LPG | 108883 |
| Xylenes (mixed) | | 1.85E-03 | lb/1000 gal LPG | 1330207 |

**LPG External Combustion->100 MMBtu/hr**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **District Toxic Profile ID** | 104 | | | | |
| **Description** | LPG External Combustion->100 MMBtu/hr | | | | |
| **Source** | The emission factors are from the table, "Natural Gas Fired External Combustion Equipment" in the May 2001 update of VCAPCD AB 2588 Combustion Emission Factors and a conversion from NG to LPG using District factors. | | | | |
|  | | | | | |
| **Pollutant Name** | | **Emission Factor** | **Emission Factor Units** | **CAS#** |
| Acetaldehyde | | 8.46E-05 | lb/1000 gal LPG | 75070 |
| Acrolein | | 7.52E-05 | lb/1000 gal LPG | 107028 |
| Benzene | | 1.60E-04 | lb/1000 gal LPG | 71432 |
| Ethyl benzene | | 1.88E-04 | lb/1000 gal LPG | 100414 |
| Formaldehyde | | 3.38E-04 | lb/1000 gal LPG | 50000 |
| Hexane | | 1.22E-04 | lb/1000 gal LPG | 110543 |
| Naphthalene | | 2.82E-05 | lb/1000 gal LPG | 91203 |
| PAHs, total, w/o individ. components reported | | 9.40E-06 | lb/1000 gal LPG | 1151 |
| Propylene | | 1.46E-03 | lb/1000 gal LPG | 115071 |
| Toluene | | 7.33E-04 | lb/1000 gal LPG | 108883 |
| Xylenes (mixed) | | 5.45E-04 | lb/1000 gal LPG | 1330207 |

**LPG External Combustion-Flare**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **District Toxic Profile ID** | 105 | | | | |
| **Description** | LPG External Combustion-Flare | | | | |
| **Source** | The emission factors were based on the May 2001 update of VCAPCD AB 2588 Combustion Emission Factors and conversion from NG to LPG | | | | |
|  | | | | | |
| **Pollutant Name** | | **Emission Factor** | **Emission Factor Units** | **CAS#** |
| Acetaldehyde | | 4.04E-03 | lb/1000 gal LPG | 75070 |
| Acrolein | | 9.40E-04 | lb/1000 gal LPG | 107028 |
| Benzene | | 1.49E-02 | lb/1000 gal LPG | 71432 |
| Ethyl benzene | | 1.36E-01 | lb/1000 gal LPG | 100414 |
| Formaldehyde | | 1.10E-01 | lb/1000 gal LPG | 50000 |
| Hexane | | 2.73E-03 | lb/1000 gal LPG | 110543 |
| Naphthalene | | 1.03E-03 | lb/1000 gal LPG | 91203 |
| PAHs, total, w/o individ. components reported | | 2.82E-04 | lb/1000 gal LPG | 1151 |
| Propylene | | 2.29E-01 | lb/1000 gal LPG | 115071 |
| Toluene | | 5.45E-03 | lb/1000 gal LPG | 108883 |
| Xylenes (mixed) | | 2.73E-03 | lb/1000 gal LPG | 1330207 |

**NG < 10 MMBTU/Hr External Combustion**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **District Toxic Profile ID** | 3 | | | | |
| **Description** | NG < 10 MMBTU/Hr External Combustion | | | | |
| **Source** | The emission factors are from the table, "Natural Gas Fired External Combustion Equipment" in the May 2001 update of VCAPCD AB 2588 Combustion Emission Factors. | | | | |
|  | | | | | |
| **Pollutant Name** | | **Emission Factor** | **Emission Factor Units** | **CAS#** |
| Acetaldehyde | | 4.30E-03 | lb/mmscf | 75070 |
| Acrolein | | 2.70E-03 | lb/mmscf | 107028 |
| Benzene | | 8.00E-03 | lb/mmscf | 71432 |
| Ethyl benzene | | 9.50E-03 | lb/mmscf | 100414 |
| Formaldehyde | | 1.70E-02 | lb/mmscf | 50000 |
| Hexane | | 6.30E-03 | lb/mmscf | 110543 |
| Naphthalene | | 3.00E-04 | lb/mmscf | 91203 |
| PAHs, total, w/o individ. components reported | | 1.00E-04 | lb/mmscf | 1151 |
| Propylene | | 7.31E-01 | lb/mmscf | 115071 |
| Toluene | | 3.66E-02 | lb/mmscf | 108883 |
| Xylenes (mixed) | | 2.72E-02 | lb/mmscf | 1330207 |

**NG 10-100 MMBTU/Hr External Combustion**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **District Toxic Profile ID** | 6 | | | | |
| **Description** | NG 10-100 MMBTU/Hr External Combustion | | | | |
| **Source** | The emission factors are from the table, "Natural Gas Fired External Combustion Equipment" in the May 2001 update of VCAPCD AB 2588 Combustion Emission Factors. | | | | |
|  | | | | | |
| **Pollutant Name** | | **Emission Factor** | **Emission Factor Units** | **CAS#** |
| Acetaldehyde | | 3.10E-03 | lb/mmscf | 75070 |
| Acrolein | | 2.70E-03 | lb/mmscf | 107028 |
| Benzene | | 5.80E-03 | lb/mmscf | 71432 |
| Ethyl benzene | | 6.90E-03 | lb/mmscf | 100414 |
| Formaldehyde | | 1.23E-02 | lb/mmscf | 50000 |
| Hexane | | 4.60E-03 | lb/mmscf | 110543 |
| Naphthalene | | 3.00E-04 | lb/mmscf | 91203 |
| PAHs, total, w/o individ. components reported | | 1.00E-04 | lb/mmscf | 1151 |
| Propylene | | 5.30E-01 | lb/mmscf | 115071 |
| Toluene | | 2.65E-02 | lb/mmscf | 108883 |
| Xylenes (mixed) | | 1.97E-02 | lb/mmscf | 1330207 |

**NG >100 MMBTU/Hr External Combustion**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **District Toxic Profile ID** | 8 | | | | |
| **Description** | NG >100 MMBTU/Hr External Combustion | | | | |
| **Source** | The emission factors are from the table, "Natural Gas Fired External Combustion Equipment" in the May 2001 update of VCAPCD AB 2588 Combustion Emission Factors. | | | | |
|  | | | | | |
| **Pollutant Name** | | **Emission Factor** | **Emission Factor Units** | **CAS#** |
| Acetaldehyde | | 9.00E-04 | lb/mmscf | 75070 |
| Acrolein | | 8.00E-04 | lb/mmscf | 107028 |
| Benzene | | 1.70E-03 | lb/mmscf | 71432 |
| Ethyl benzene | | 2.00E-03 | lb/mmscf | 100414 |
| Formaldehyde | | 3.60E-03 | lb/mmscf | 50000 |
| Hexane | | 1.30E-03 | lb/mmscf | 110543 |
| Naphthalene | | 3.00E-04 | lb/mmscf | 91203 |
| PAHs, total, w/o individ. components reported | | 1.00E-04 | lb/mmscf | 1151 |
| Propylene | | 1.55E-02 | lb/mmscf | 115071 |
| Toluene | | 7.80E-03 | lb/mmscf | 108883 |
| Xylenes (mixed) | | 5.80E-03 | lb/mmscf | 1330207 |

**NG Flare External Combustion**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **District Toxic Profile ID** | 9 | | | | |
| **Description** | NG Flare External Combustion | | | | |
| **Source** | The emission factors are from the table, "Natural Gas Fired External Combustion Equipment" in the May 2001 update of VCAPCD AB 2588 Combustion Emission Factors. | | | | |
|  | | | | | |
| **Pollutant Name** | | **Emission Factor** | **Emission Factor Units** | **CAS#** |
| Acetaldehyde | | 4.30E-02 | lb/mmscf | 75070 |
| Acrolein | | 1.00E-02 | lb/mmscf | 107028 |
| Benzene | | 1.59E-01 | lb/mmscf | 71432 |
| Ethyl benzene | | 1.44E+00 | lb/mmscf | 100414 |
| Formaldehyde | | 1.17E+00 | lb/mmscf | 50000 |
| Hexane | | 2.90E-02 | lb/mmscf | 110543 |
| Naphthalene | | 1.10E-02 | lb/mmscf | 91203 |
| PAHs, total, w/o individ. components reported | | 3.00E-03 | lb/mmscf | 1151 |
| Propylene | | 2.44E+00 | lb/mmscf | 115071 |
| Toluene | | 5.80E-02 | lb/mmscf | 108883 |
| Xylenes (mixed) | | 2.90E-02 | lb/mmscf | 1330207 |

**Z1 SU Fuel Oil #6 External Combustion**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **District Toxic Profile ID** | 50 | | | | |
| **Description** | Z1 SU Fuel Oil #6 External Combustion | | | | |
| **Source** | The emission factors are derived from the Chevron Bitterwater Pump Station (S1394) TEIR (1991, System ID C26427, Folder ID 2569858) source test for a Boiler (mislabeled as a Steam Generator) fueled by crude oil. | | | | |
|  | | | | | |
| **Pollutant Name** | | **Emission Factor** | **Emission Factor Units** | **CAS#** |
| 1,3-Butadiene | | 1.08E-02 | lb/1000 gal burned | 106990 |
| Acetaldehyde | | 1.75E-03 | lb/1000 gal burned | 75070 |
| Acrolein | | 2.13E-03 | lb/1000 gal burned | 107028 |
| Arsenic | | 1.29E-03 | lb/1000 gal burned | 7440382 |
| Benzene | | 4.63E-03 | lb/1000 gal burned | 71432 |
| Benzo[a]pyrene | | 4.80E-08 | lb/1000 gal burned | 50328 |
| Benzo[b]fluoranthene | | 1.90E-06 | lb/1000 gal burned | 205992 |
| Benzo[e]pyrene | | 1.08E-04 | lb/1000 gal burned | 192972 |
| Benzo[k]fluoranthene | | 7.20E-09 | lb/1000 gal burned | 207089 |
| Beryllium | | 5.69E-04 | lb/1000 gal burned | 7440417 |
| Cadmium | | 7.70E-04 | lb/1000 gal burned | 7440439 |
| Chloroform | | 4.75E-03 | lb/1000 gal burned | 67663 |
| Chromium, hexavalent (& compounds) | | 1.27E-03 | lb/1000 gal burned | 18540299 |
| Copper | | 3.38E-03 | lb/1000 gal burned | 7440508 |
| Dibenz[a,h]anthracene | | 9.84E-07 | lb/1000 gal burned | 53703 |
| Dioxins, total, w/o individ. isomers reported {PCDDs} | | 2.40E-08 | lb/1000 gal burned | 1086 |
| Dioxins, total, with individ. isomers also reported {PCDDs} | | 2.40E-08 | lb/1000 gal burned | 1085 |
| Formaldehyde | | 1.07E-02 | lb/1000 gal burned | 50000 |
| Indeno[1,2,3-cd]pyrene | | 5.28E-07 | lb/1000 gal burned | 193395 |
| Lead | | 1.43E-02 | lb/1000 gal burned | 7439921 |
| Manganese | | 5.10E-03 | lb/1000 gal burned | 7439965 |
| Mercury | | 9.36E-06 | lb/1000 gal burned | 7439976 |
| Naphthalene | | 6.94E-05 | lb/1000 gal burned | 91203 |
| Nickel | | 3.40E-07 | lb/1000 gal burned | 7440020 |
| Selenium | | 2.57E-03 | lb/1000 gal burned | 7782492 |
| Toluene | | 5.42E-03 | lb/1000 gal burned | 108883 |
| Xylenes (mixed) | | 1.04E-02 | lb/1000 gal burned | 1330207 |
| Zinc | | 1.41E-02 | lb/1000 gal burned | 7440666 |

***Internal Combustion***

**Diesel, Distillate Oil, Fuel Oil #2-Fired Turbines**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **District Toxic Profile ID** | 155 | | | | |
| **Description** | Diesel, Distillate Oil, Fuel Oil #2-Fired Turbines | | | | |
| **Source** | The emission factors were derived from the 2002 update of EPA's Stationary Combustion Turbines Emissions Database. The District uses a Diesel Heating Value of 137MMBtu/1,000 gallons. | | | | |
|  | | | | | |
| **Pollutant Name** | | **Emission Factor** | **Emission Factor Units** | **CAS#** |
| 1,3-Butadiene | | 3.82E-03 | lbs/1,000 gals | 106990 |
| Acetaldehyde | | 5.23E-03 | lbs/1,000 gals | 75070 |
| Arsenic | | 3.06E-03 | lbs/1,000 gals | 7440382 |
| Benzene | | 1.71E-02 | lbs/1,000 gals | 71432 |
| Beryllium | | 4.21E-05 | lbs/1,000 gals | 7440417 |
| Cadmium | | 1.02E-03 | lbs/1,000 gals | 7440439 |
| Carbon tetrachloride | | 4.43E-03 | lbs/1,000 gals | 56235 |
| Chlorobenzene | | 3.81E-03 | lbs/1,000 gals | 108907 |
| Chloroform | | 3.67E-03 | lbs/1,000 gals | 67663 |
| Chromium | | 2.04E-03 | lbs/1,000 gals | 7440473 |
| Chromium, hexavalent (& compounds) | | 1.02E-04 | lbs/1,000 gals | 18540299 |
| Ethylene dichloride {EDC} | | 2.79E-03 | lbs/1,000 gals | 107062 |
| Formaldehyde | | 1.38E-01 | lbs/1,000 gals | 50000 |
| Lead | | 3.06E-03 | lbs/1,000 gals | 7439921 |
| Manganese | | 1.08E-01 | lbs/1,000 gals | 7439965 |
| Mercury | | 1.64E-04 | lbs/1,000 gals | 7439976 |
| Methylene chloride {Dichloromethane} | | 3.92E-03 | lbs/1,000 gals | 75092 |
| Naphthalene | | 2.10E-02 | lbs/1,000 gals | 91203 |
| Nickel | | 7.12E-03 | lbs/1,000 gals | 7440020 |
| PAHs, total, w/o individ. components reported | | 2.15E-02 | lbs/1,000 gals | 1151 |
| p-Dichlorobenzene | | 4.23E-03 | lbs/1,000 gals | 106467 |
| Perchloroethylene {Tetrachloroethene} | | 4.78E-03 | lbs/1,000 gals | 127184 |
| Selenium | | 1.02E-02 | lbs/1,000 gals | 7782492 |
| Trichloroethylene | | 3.79E-03 | lbs/1,000 gals | 79016 |
| Vinyl chloride | | 8.99E-03 | lbs/1,000 gals | 75014 |
| Vinylidene chloride | | 2.79E-03 | lbs/1,000 gals | 75354 |

**Diesel Engine Particulate Matter**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **District Toxic Profile ID** | 136 | | | | |
| **Description** | Diesel Engine Particulate Matter | | | | |
| **Source** | Assumes all PM10 is DPM | | | | |
|  | | | | | |
| **Pollutant Name** | | **Emission Factor** | **Emission Factor Units** | **CAS#** |
| Diesel engine exhaust, particulate matter | | 1.00E+00 | lb/lb PM10 | 9901 |

**Gasoline-Fired Non-Catalyst ICE**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **District Toxic Profile ID** | 175 | | | | |
| **Description** | Gasoline-Fired Non-Catalyst ICE | | | | |
| **Source** | The emission factors are from Table B-4 (Pg 17), "Default EF for Gasoline Combustion" in the January 2010 South Coast Air Quality Management District report, Supplemental Instructions Reporting Procedures for AB2588 Facilities for Reporting their Quadrennial Air Toxics Emissions Inventory Annual Emissions Reporting Program. | | | | |
|  | | | | | |
| **Pollutant Name** | | **Emission Factor** | **Emission Factor Units** | **CAS#** |
| 1,2,4-Trimethylbenzene | | 1.39E+00 | lbs/1,000 gallons | 95636 |
| 1,3-Butadiene | | 9.18E-01 | lbs/1,000 gallons | 106990 |
| Acetaldehyde | | 8.30E-01 | lbs/1,000 gallons | 75070 |
| Acrolein | | 1.99E-01 | lbs/1,000 gallons | 107028 |
| Benzene | | 3.81E+00 | lbs/1,000 gallons | 71432 |
| Chlorine | | 4.55E-01 | lbs/1,000 gallons | 7782505 |
| Copper | | 3.30E-03 | lbs/1,000 gallons | 7440508 |
| Ethyl benzene | | 1.66E+00 | lbs/1,000 gallons | 100414 |
| Formaldehyde | | 3.45E+00 | lbs/1,000 gallons | 50000 |
| Hexane | | 1.45E+00 | lbs/1,000 gallons | 110543 |
| Manganese | | 3.30E-03 | lbs/1,000 gallons | 7439965 |
| Methanol | | 7.75E-01 | lbs/1,000 gallons | 67561 |
| Methyl ethyl ketone {2-Butanone} | | 6.64E-02 | lbs/1,000 gallons | 78933 |
| Methyl tert-butyl ether | | 2.06E+00 | lbs/1,000 gallons | 1634044 |
| m-Xylene | | 4.92E+00 | lbs/1,000 gallons | 108383 |
| Naphthalene | | 1.44E-01 | lbs/1,000 gallons | 91203 |
| Nickel | | 3.30E-03 | lbs/1,000 gallons | 7440020 |
| o-Xylene | | 1.71E+00 | lbs/1,000 gallons | 95476 |
| Styrene | | 1.44E-01 | lbs/1,000 gallons | 100425 |
| Toluene | | 7.51E+00 | lbs/1,000 gallons | 108883 |

**Gasoline-Fired Portable Catalyst ICE**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **District Toxic Profile ID** | 176 | | | | |
| **Description** | Gasoline-Fired Portable Catalyst ICE | | | | |
| **Source** | The emission factors are from Table B-4 (Pg 17), "Default EF for Gasoline Combustion" in the January 2010 South Coast Air Quality Management District report, Supplemental Instructions Reporting Procedures for AB2588 Facilities for Reporting their Quadrennial Air Toxics Emissions Inventory Annual Emissions Reporting Program. | | | | |
|  | | | | | |
| **Pollutant Name** | | **Emission Factor** | **Emission Factor Units** | **CAS#** |
| 1,2,4-Trimethylbenzene | | 5.89E-01 | lbs/1,000 Gallons | 95636 |
| 1,3-Butadiene | | 3.24E-01 | lbs/1,000 Gallons | 106990 |
| Acetaldehyde | | 1.47E-01 | lbs/1,000 Gallons | 75070 |
| Acrolein | | 8.25E-02 | lbs/1,000 Gallons | 107028 |
| Benzene | | 1.57E+00 | lbs/1,000 Gallons | 71432 |
| Chlorine | | 4.55E-01 | lbs/1,000 Gallons | 7782505 |
| Copper | | 3.30E-03 | lbs/1,000 Gallons | 7440508 |
| Ethyl benzene | | 6.42E-01 | lbs/1,000 Gallons | 100414 |
| Formaldehyde | | 1.01E+00 | lbs/1,000 Gallons | 50000 |
| Hexane | | 9.42E-01 | lbs/1,000 Gallons | 110543 |
| Manganese | | 3.30E-03 | lbs/1,000 Gallons | 7439965 |
| Methanol | | 2.42E-01 | lbs/1,000 Gallons | 67561 |
| Methyl ethyl ketone {2-Butanone} | | 1.18E-02 | lbs/1,000 Gallons | 78933 |
| Methyl tert-butyl ether | | 1.15E+00 | lbs/1,000 Gallons | 1634044 |
| m-Xylene | | 2.17E+00 | lbs/1,000 Gallons | 108383 |
| Naphthalene | | 2.95E-02 | lbs/1,000 Gallons | 91203 |
| Nickel | | 3.30E-03 | lbs/1,000 Gallons | 7440020 |
| o-Xylene | | 7.54E-01 | lbs/1,000 Gallons | 95476 |
| Styrene | | 7.07E-02 | lbs/1,000 Gallons | 100425 |
| Toluene | | 3.50E+00 | lbs/1,000 Gallons | 108883 |

**Gasoline-Fired Stationary Catalyst ICE**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **District Toxic Profile ID** | 177 | | | | |
| **Description** | Gasoline-Fired Stationary Catalyst ICE | | | | |
| **Source** | The emission factors are from Table B-4 (Pg 17), "Default EF for Gasoline Combustion" in the January 2010 South Coast Air Quality Management District report, Supplemental Instructions Reporting Procedures for AB2588 Facilities for Reporting their Quadrennial Air Toxics Emissions Inventory Annual Emissions Reporting Program. | | | | |
|  | | | | | |
| **Pollutant Name** | | **Emission Factor** | **Emission Factor Units** | **CAS#** |
| 1,2,4-Trimethylbenzene | | 5.86E-02 | lbs/1,000 Gallons | 95636 |
| 1,3-Butadiene | | 3.22E-02 | lbs/1,000 Gallons | 106990 |
| Acetaldehyde | | 1.46E-02 | lbs/1,000 Gallons | 75070 |
| Acrolein | | 8.20E-03 | lbs/1,000 Gallons | 107028 |
| Benzene | | 1.56E-01 | lbs/1,000 Gallons | 71432 |
| Chlorine | | 4.55E-01 | lbs/1,000 Gallons | 7782505 |
| Copper | | 3.30E-03 | lbs/1,000 Gallons | 7440508 |
| Ethyl benzene | | 6.38E-02 | lbs/1,000 Gallons | 100414 |
| Formaldehyde | | 1.01E-01 | lbs/1,000 Gallons | 50000 |
| Hexane | | 9.37E-02 | lbs/1,000 Gallons | 110543 |
| Manganese | | 3.30E-03 | lbs/1,000 Gallons | 7439965 |
| Methanol | | 2.40E-02 | lbs/1,000 Gallons | 67561 |
| Methyl ethyl ketone {2-Butanone} | | 1.20E-03 | lbs/1,000 Gallons | 78933 |
| Methyl tert-butyl ether | | 1.15E-01 | lbs/1,000 Gallons | 1634044 |
| m-Xylene | | 2.16E-01 | lbs/1,000 Gallons | 108383 |
| Naphthalene | | 2.90E-03 | lbs/1,000 Gallons | 91203 |
| Nickel | | 3.30E-03 | lbs/1,000 Gallons | 7440020 |
| o-Xylene | | 7.50E-02 | lbs/1,000 Gallons | 95476 |
| Styrene | | 7.00E-03 | lbs/1,000 Gallons | 100425 |
| Toluene | | 3.49E-01 | lbs/1,000 Gallons | 108883 |

**LPG-Fired Internal Combustion 2SLB Engine No Cont**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **District Toxic Profile ID** | 154 | | | | |
| **Description** | LPG-Fired Internal Combustion 2SLB Engine No Cont | | | | |
| **Source** | The emission factors are derived from July 2000 AP 42, Fifth Edition, Volume I, Chapter 3: Stationary Internal Combustion Sources, Section 2: Natural Gas-Fired Reciprocating Engine and conversion from NG to LPG using District conversion factors.. Use spreadsheet to determine VOC control or to use different HHV | | | | |
|  | | | | | |
| **Pollutant Name** | | **Emission Factor** | **Emission Factor Units** | **CAS#** |
| 1,1,2,2-Tetrachloroethane | | 6.23E-03 | lbs/1,000 gals | 79345 |
| 1,1,2-Trichloroethane | | 4.95E-03 | lbs/1,000 gals | 79005 |
| 1,1-Dichloroethane | | 3.68E-03 | lbs/1,000 gals | 75343 |
| 1,2,4-Trimethylbenzene | | 9.21E-04 | lbs/1,000 gals | 95636 |
| 1,3-Butadiene | | 7.71E-02 | lbs/1,000 gals | 106990 |
| 2,2,4-Trimethylpentane | | 7.95E-02 | lbs/1,000 gals | 540841 |
| 2-Methyl naphthalene | | 2.01E-03 | lbs/1,000 gals | 91576 |
| Acenaphthene | | 1.25E-04 | lbs/1,000 gals | 83329 |
| Acenaphthylene | | 2.98E-04 | lbs/1,000 gals | 208968 |
| Acetaldehyde | | 7.29E-01 | lbs/1,000 gals | 75070 |
| Acrolein | | 7.31E-01 | lbs/1,000 gals | 107028 |
| Anthracene | | 6.75E-05 | lbs/1,000 gals | 120127 |
| Benz[a]anthracene | | 3.16E-05 | lbs/1,000 gals | 56553 |
| Benzene | | 1.82E-01 | lbs/1,000 gals | 71432 |
| Benzo[a]pyrene | | 2.20E-06 | lbs/1,000 gals | 50328 |
| Benzo[b]fluoranthene | | 8.00E-07 | lbs/1,000 gals | 205992 |
| Benzo[e]pyrene | | 2.20E-06 | lbs/1,000 gals | 192972 |
| Benzo[g,h,i]perylene | | 2.33E-06 | lbs/1,000 gals | 191242 |
| Benzo[k]fluoranthene | | 4.00E-07 | lbs/1,000 gals | 207089 |
| Biphenyl | | 3.71E-04 | lbs/1,000 gals | 92524 |
| Carbon tetrachloride | | 5.71E-03 | lbs/1,000 gals | 56235 |
| Chlorobenzene | | 4.17E-03 | lbs/1,000 gals | 108907 |
| Chloroform | | 4.43E-03 | lbs/1,000 gals | 67663 |
| Chrysene | | 6.32E-05 | lbs/1,000 gals | 218019 |
| Cyclohexane | | 2.90E-02 | lbs/1,000 gals | 110827 |
| Ethyl benzene | | 1.02E-02 | lbs/1,000 gals | 100414 |
| Ethylene dibromide {EDB} | | 6.90E-03 | lbs/1,000 gals | 106934 |
| Fluoranthene | | 3.39E-05 | lbs/1,000 gals | 206440 |
| Fluorene | | 1.59E-04 | lbs/1,000 gals | 86737 |
| Formaldehyde | | 5.19E+00 | lbs/1,000 gals | 50000 |
| Hexane | | 4.18E-02 | lbs/1,000 gals | 110543 |
| Indeno[1,2,3-cd]pyrene | | 9.33E-07 | lbs/1,000 gals | 193395 |
| Methanol | | 2.33E-01 | lbs/1,000 gals | 67561 |
| Methylene chloride {Dichloromethane} | | 1.38E-02 | lbs/1,000 gals | 75092 |
| Naphthalene | | 9.05E-03 | lbs/1,000 gals | 91203 |
| PAHs, total, w/o individ. components reported | | 1.23E-02 | lbs/1,000 gals | 1151 |
| Perylene | | 4.67E-07 | lbs/1,000 gals | 198550 |
| Phenanthrene | | 3.32E-04 | lbs/1,000 gals | 85018 |
| Phenol | | 3.96E-03 | lbs/1,000 gals | 108952 |
| Pyrene | | 5.49E-05 | lbs/1,000 gals | 129000 |
| Styrene | | 5.15E-03 | lbs/1,000 gals | 100425 |
| Toluene | | 9.05E-02 | lbs/1,000 gals | 108883 |
| Vinyl chloride | | 2.32E-03 | lbs/1,000 gals | 75014 |
| Xylenes (mixed) | | 2.52E-02 | lbs/1,000 gals | 1330207 |

**LPG-Fired Internal Combustion 4SLB Engine No Cont**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **District Toxic Profile ID** | 137 | | | | |
| **Description** | LPG-Fired Internal Combustion 4SLB Engine No Cont | | | | |
| **Source** | The emission factors are derived from July 2000 AP 42, Fifth Edition, Volume I, Chapter 3: Stationary Internal Combustion Sources, Section 2: Natural Gas-Fired Reciprocating Engine and conversion from NG to LPG using District conversion factors.. Use spreadsheet to determine VOC control or to use different HHV | | | | |
|  | | | | | |
| **Pollutant Name** | | **Emission Factor** | **Emission Factor Units** | **CAS#** |
| 1,1,2,2-Tetrachloroethane | | 3.76E-03 | lb/1,000 gallons | 79345 |
| 1,1,2-Trichloroethane | | 2.99E-03 | lb/1,000 gallons | 79005 |
| 1,1-Dichloroethane | | 2.22E-03 | lb/1,000 gallons | 75343 |
| 1,2,4-Trimethylbenzene | | 1.34E-03 | lb/1,000 gallons | 95636 |
| 1,3-Butadiene | | 2.51E-02 | lb/1,000 gallons | 106990 |
| 2,2,4-Trimethylpentane | | 2.35E-02 | lb/1,000 gallons | 540841 |
| 2-Methyl naphthalene | | 3.12E-03 | lb/1,000 gallons | 91576 |
| Acenaphthene | | 1.18E-04 | lb/1,000 gallons | 83329 |
| Acenaphthylene | | 5.20E-04 | lb/1,000 gallons | 208968 |
| Acetaldehyde | | 7.86E-01 | lb/1,000 gallons | 75070 |
| Acrolein | | 4.83E-01 | lb/1,000 gallons | 107028 |
| Benzene | | 4.14E-02 | lb/1,000 gallons | 71432 |
| Benzo[b]fluoranthene | | 1.56E-05 | lb/1,000 gallons | 205992 |
| Benzo[e]pyrene | | 3.90E-05 | lb/1,000 gallons | 192972 |
| Benzo[g,h,i]perylene | | 3.89E-05 | lb/1,000 gallons | 191242 |
| Biphenyl | | 1.99E-02 | lb/1,000 gallons | 92524 |
| Carbon tetrachloride | | 3.45E-03 | lb/1,000 gallons | 56235 |
| Chlorobenzene | | 2.86E-03 | lb/1,000 gallons | 108907 |
| Chloroform | | 2.68E-03 | lb/1,000 gallons | 67663 |
| Chrysene | | 6.51E-05 | lb/1,000 gallons | 218019 |
| Ethyl benzene | | 3.73E-03 | lb/1,000 gallons | 100414 |
| Ethylene dibromide {EDB} | | 4.16E-03 | lb/1,000 gallons | 106934 |
| Fluoranthene | | 1.04E-04 | lb/1,000 gallons | 206440 |
| Fluorene | | 5.33E-04 | lb/1,000 gallons | 86737 |
| Formaldehyde | | 4.96E+00 | lb/1,000 gallons | 50000 |
| Hexane | | 1.04E-01 | lb/1,000 gallons | 110543 |
| Methanol | | 2.35E-01 | lb/1,000 gallons | 67561 |
| Methylene chloride {Dichloromethane} | | 1.88E-03 | lb/1,000 gallons | 75092 |
| Naphthalene | | 6.99E-03 | lb/1,000 gallons | 91203 |
| PAHs, total, w/o individ. components reported | | 2.53E-03 | lb/1,000 gallons | 1151 |
| Phenanthrene | | 9.78E-04 | lb/1,000 gallons | 85018 |
| Phenol | | 2.26E-03 | lb/1,000 gallons | 108952 |
| Pyrene | | 1.28E-04 | lb/1,000 gallons | 129000 |
| Styrene | | 2.22E-03 | lb/1,000 gallons | 100425 |
| Toluene | | 3.84E-02 | lb/1,000 gallons | 108883 |
| Vinyl chloride | | 1.40E-03 | lb/1,000 gallons | 75014 |
| Xylenes (mixed) | | 1.73E-02 | lb/1,000 gallons | 1330207 |

**LPG-Fired Internal Combustion 4SRB Engine No Cont**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **District Toxic Profile ID** | 156 | | | | |
| **Description** | LPG-Fired Internal Combustion 4SRB Engine No Cont | | | | |
| **Source** | The emission factors are derived from July 2000 AP 42, Fifth Edition, Volume I, Chapter 3: Stationary Internal Combustion Sources, Section 2: Natural Gas-Fired Reciprocating Engine and conversion from NG to LPG using District conversion factors. Use spreadsheet to determine VOC control or to use different HHV. | | | | |
|  | | | | | |
| **Pollutant Name** | | **Emission Factor** | **Emission Factor Units** | **CAS#** |
| 1,1,2,2-Tetrachloroethane | | 2.38E-03 | lbs/1,000 gals | 79345 |
| 1,1,2-Trichloroethane | | 1.44E-03 | lbs/1,000 gals | 79005 |
| 1,1-Dichloroethane | | 1.06E-03 | lbs/1,000 gals | 75343 |
| 1,3-Butadiene | | 6.23E-02 | lbs/1,000 gals | 106990 |
| Acetaldehyde | | 2.62E-01 | lbs/1,000 gals | 75070 |
| Acrolein | | 2.47E-01 | lbs/1,000 gals | 107028 |
| Benzene | | 1.49E-01 | lbs/1,000 gals | 71432 |
| Carbon tetrachloride | | 1.66E-03 | lbs/1,000 gals | 56235 |
| Chlorobenzene | | 1.21E-03 | lbs/1,000 gals | 108907 |
| Chloroform | | 1.29E-03 | lbs/1,000 gals | 67663 |
| Ethyl benzene | | 2.33E-03 | lbs/1,000 gals | 100414 |
| Ethylene dibromide {EDB} | | 2.00E-03 | lbs/1,000 gals | 106934 |
| Formaldehyde | | 1.93E+00 | lbs/1,000 gals | 50000 |
| Methanol | | 2.88E-01 | lbs/1,000 gals | 67561 |
| Methylene chloride {Dichloromethane} | | 3.87E-03 | lbs/1,000 gals | 75092 |
| Naphthalene | | 9.13E-03 | lbs/1,000 gals | 91203 |
| PAHs, total, w/o individ. components reported | | 1.33E-02 | lbs/1,000 gals | 1151 |
| Styrene | | 1.12E-03 | lbs/1,000 gals | 100425 |
| Toluene | | 5.25E-02 | lbs/1,000 gals | 108883 |
| Vinyl chloride | | 6.75E-04 | lbs/1,000 gals | 75014 |
| Xylenes (mixed) | | 1.83E-02 | lbs/1,000 gals | 1330207 |

**LPG Internal Combustion - Turbine w/o Catalyst**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **District Toxic Profile ID** | 108 | | | | |
| **Description** | LPG Internal Combustion - Turbine w/o Catalyst | | | | |
| **Source** | LPG-fired turbine toxic emission are not available, so natural gas-fired turbine emission factors are used as a surrogate.The emission factors were based on AP 42, Fifth Edition, Volume I, Chapter 3: Stationary Internal Combustion Sources, Section 3: Stationary Gas Turbines, Table 3.1-3. Assumes 94,000 Btu/gal LPG | | | | |
|  | | | | | |
| **Pollutant Name** | | **Emission Factor** | **Emission Factor Units** | **CAS#** |
| 1,3-Butadiene | | 4.04E-05 | lb/1000 gal LPG | 106990 |
| Acetaldehyde | | 3.76E-03 | lb/1000 gal LPG | 75070 |
| Acrolein | | 6.02E-04 | lb/1000 gal LPG | 107028 |
| Benzene | | 1.13E-03 | lb/1000 gal LPG | 71432 |
| Ethyl benzene | | 3.01E-03 | lb/1000 gal LPG | 100414 |
| Formaldehyde | | 6.67E-02 | lb/1000 gal LPG | 50000 |
| Naphthalene | | 1.22E-04 | lb/1000 gal LPG | 91203 |
| PAHs, total, with individ. components also reported | | 2.07E-04 | lb/1000 gal LPG | 1150 |
| Propylene oxide | | 2.73E-03 | lb/1000 gal LPG | 75569 |
| Toluene | | 1.22E-02 | lb/1000 gal LPG | 108883 |
| Xylenes (mixed) | | 6.02E-03 | lb/1000 gal LPG | 1330207 |

**LPG Internal Combustion - Turbine w/ Catalyst**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **District Toxic Profile ID** | 158 | | | | |
| **Description** | LPG Internal Combustion - Turbine w/ Catalyst | | | | |
| **Source** | LPG-fired turbine toxic emission are not available, so natural gas-fired turbine emission factors are used as a surrogate.The emission factors were based on AP 42, Fifth Edition, Volume I, Chapter 3: Stationary Internal Combustion Sources, Section 3: Stationary Gas Turbines, Table 3.1-3. Assumes 94,000 Btu/gal LPG | | | | |
|  | | | | | |
| **Pollutant Name** | | **Emission Factor** | **Emission Factor Units** | **CAS#** |
| 1,3-Butadiene | | 4.04E-05 | lb/1,000 Gallons | 106990 |
| Acetaldehyde | | 3.76E-03 | lb/1,000 Gallons | 75070 |
| Acrolein | | 6.02E-04 | lb/1,000 Gallons | 107028 |
| Benzene | | 8.55E-05 | lb/1,000 Gallons | 71432 |
| Ethyl benzene | | 3.01E-03 | lb/1,000 Gallons | 100414 |
| Formaldehyde | | 1.88E-03 | lb/1,000 Gallons | 50000 |
| Naphthalene | | 1.22E-04 | lb/1,000 Gallons | 91203 |
| PAHs, total, with individ. components also reported | | 2.07E-04 | lb/1,000 Gallons | 1150 |
| Propylene oxide | | 2.73E-03 | lb/1,000 Gallons | 75569 |
| Toluene | | 1.22E-02 | lb/1,000 Gallons | 108883 |
| Xylenes (mixed) | | 6.02E-03 | lb/1,000 Gallons | 1330207 |

**NG Internal Combustion 2SLB Engine No Controls**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **District Toxic Profile ID** | 159 | | | | |
| **Description** | NG Internal Combustion 2SLB Engine No Controls | | | | |
| **Source** | The emission factors were based on AP 42, Fifth Edition, Volume I, Chapter 3: Stationary Internal Combustion Sources, Section 2: Natural Gas-Fired Reciprocating Engines, Table 3.2-1. Assumes 1,000 btu per scf natural gas. Use spreadsheet to determine VOC control or to use different HHV | | | | |
|  | | | | | |
| **Pollutant Name** | | **Emission Factor** | **Emission Factor Units** | **CAS#** |
| 1,1,2,2-Tetrachloroethane | | 6.63E-02 | lb/MMscf | 79345 |
| 1,1,2-Trichloroethane | | 5.27E-02 | lb/MMscf | 79005 |
| 1,1-Dichloroethane | | 3.91E-02 | lb/MMscf | 75343 |
| 1,2,4-Trimethylbenzene | | 9.80E-03 | lb/MMscf | 95636 |
| 1,3-Butadiene | | 8.20E-01 | lb/MMscf | 106990 |
| 2,2,4-Trimethylpentane | | 8.46E-01 | lb/MMscf | 540841 |
| 2-Methyl naphthalene | | 2.14E-02 | lb/MMscf | 91576 |
| Acenaphthene | | 1.33E-03 | lb/MMscf | 83329 |
| Acenaphthylene | | 3.17E-03 | lb/MMscf | 208968 |
| Acetaldehyde | | 7.76E+00 | lb/MMscf | 75070 |
| Acrolein | | 7.78E+00 | lb/MMscf | 107028 |
| Anthracene | | 7.18E-04 | lb/MMscf | 120127 |
| Benz[a]anthracene | | 3.36E-04 | lb/MMscf | 56553 |
| Benzene | | 1.94E+00 | lb/MMscf | 71432 |
| Benzo[a]pyrene | | 5.68E-06 | lb/MMscf | 50328 |
| Benzo[b]fluoranthene | | 8.51E-06 | lb/MMscf | 205992 |
| Benzo[e]pyrene | | 2.34E-05 | lb/MMscf | 192972 |
| Benzo[g,h,i]perylene | | 2.48E-05 | lb/MMscf | 191242 |
| Benzo[k]fluoranthene | | 4.26E-06 | lb/MMscf | 207089 |
| Biphenyl | | 3.95E-03 | lb/MMscf | 92524 |
| Carbon tetrachloride | | 6.07E-02 | lb/MMscf | 56235 |
| Chlorobenzene | | 4.44E-02 | lb/MMscf | 108907 |
| Chloroform | | 4.71E-02 | lb/MMscf | 67663 |
| Chrysene | | 6.72E-04 | lb/MMscf | 218019 |
| Cyclohexane | | 3.08E-01 | lb/MMscf | 110827 |
| Ethyl benzene | | 1.08E-01 | lb/MMscf | 100414 |
| Ethylene dibromide {EDB} | | 7.34E-02 | lb/MMscf | 106934 |
| Ethylene dichloride {EDC} | | 4.22E-02 | lb/MMscf | 107062 |
| Fluoranthene | | 3.61E-04 | lb/MMscf | 206440 |
| Fluorene | | 1.69E-03 | lb/MMscf | 86737 |
| Formaldehyde | | 5.52E+01 | lb/MMscf | 50000 |
| Hexane | | 4.45E-01 | lb/MMscf | 110543 |
| Indeno[1,2,3-cd]pyrene | | 9.93E-06 | lb/MMscf | 193395 |
| Methanol | | 2.48E+00 | lb/MMscf | 67561 |
| Methylene chloride {Dichloromethane} | | 1.47E-01 | lb/MMscf | 75092 |
| Naphthalene | | 9.63E-02 | lb/MMscf | 91203 |
| PAHs, total, w/o individ. components reported | | 3.47E-02 | lb/MMscf | 1151 |
| Perylene | | 4.97E-06 | lb/MMscf | 198550 |
| Phenanthrene | | 3.53E-03 | lb/MMscf | 85018 |
| Phenol | | 4.21E-02 | lb/MMscf | 108952 |
| Pyrene | | 5.84E-04 | lb/MMscf | 129000 |
| Styrene | | 5.48E-02 | lb/MMscf | 100425 |
| Toluene | | 9.63E-01 | lb/MMscf | 108883 |
| Vinyl chloride | | 2.47E-02 | lb/MMscf | 75014 |
| Xylenes (mixed) | | 2.68E-01 | lb/MMscf | 1330207 |

**NG Internal Combustion 4SLB Engine No Controls**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **District Toxic Profile ID** | 160 | | | | |
| **Description** | NG Internal Combustion 4SLB Engine No Controls | | | | |
| **Source** | The emission factors were based on AP 42, Fifth Edition, Volume I, Chapter 3: Stationary Internal Combustion Sources, Section 2: Natural Gas-Fired Reciprocating Engines, Table 3.2-2. Assumes 1,000 Btu per scf natural gas. Use spreadsheet to determine VOC control or to use different HHV | | | | |
|  | | | | | |
| **Pollutant Name** | | **Emission Factor** | **Emission Factor Units** | **CAS#** |
| 1,1,2,2-Tetrachloroethane | | 4.00E-02 | lb/MMscf | 79345 |
| 1,1,2-Trichloroethane | | 3.18E-02 | lb/MMscf | 79005 |
| 1,1-Dichloroethane | | 2.36E-02 | lb/MMscf | 75343 |
| 1,2,4-Trimethylbenzene | | 1.43E-02 | lb/MMscf | 95636 |
| 1,3-Butadiene | | 2.67E-01 | lb/MMscf | 106990 |
| 2,2,4-Trimethylpentane | | 2.50E-01 | lb/MMscf | 540841 |
| 2-Methyl naphthalene | | 3.32E-02 | lb/MMscf | 91576 |
| Acenaphthene | | 1.25E-03 | lb/MMscf | 83329 |
| Acenaphthylene | | 5.53E-03 | lb/MMscf | 208968 |
| Acetaldehyde | | 8.36E+00 | lb/MMscf | 75070 |
| Acrolein | | 5.14E+00 | lb/MMscf | 107028 |
| Benzene | | 4.40E-01 | lb/MMscf | 71432 |
| Benzo[b]fluoranthene | | 1.66E-04 | lb/MMscf | 205992 |
| Benzo[e]pyrene | | 4.15E-04 | lb/MMscf | 192972 |
| Benzo[g,h,i]perylene | | 4.14E-04 | lb/MMscf | 191242 |
| Biphenyl | | 2.12E-01 | lb/MMscf | 92524 |
| Carbon tetrachloride | | 3.67E-02 | lb/MMscf | 56235 |
| Chlorobenzene | | 3.04E-02 | lb/MMscf | 108907 |
| Chloroform | | 2.85E-02 | lb/MMscf | 67663 |
| Chrysene | | 6.93E-04 | lb/MMscf | 218019 |
| Ethyl benzene | | 3.97E-02 | lb/MMscf | 100414 |
| Ethylene dibromide {EDB} | | 4.43E-02 | lb/MMscf | 106934 |
| Ethylene dichloride {EDC} | | 2.36E-02 | lb/MMscf | 107062 |
| Fluoranthene | | 1.11E-03 | lb/MMscf | 206440 |
| Fluorene | | 5.67E-03 | lb/MMscf | 86737 |
| Formaldehyde | | 5.28E+01 | lb/MMscf | 50000 |
| Hexane | | 1.11E+00 | lb/MMscf | 110543 |
| Methanol | | 2.50E+00 | lb/MMscf | 67561 |
| Methylene chloride {Dichloromethane} | | 2.00E-02 | lb/MMscf | 75092 |
| Naphthalene | | 7.44E-02 | lb/MMscf | 91203 |
| PAHs, total, w/o individ. components reported | | 7.75E-03 | lb/MMscf | 1151 |
| Phenanthrene | | 1.04E-02 | lb/MMscf | 85018 |
| Phenol | | 2.40E-02 | lb/MMscf | 108952 |
| Pyrene | | 1.36E-03 | lb/MMscf | 129000 |
| Styrene | | 2.36E-02 | lb/MMscf | 100425 |
| Toluene | | 4.08E-01 | lb/MMscf | 108883 |
| Vinyl chloride | | 1.49E-02 | lb/MMscf | 75014 |
| Xylenes (mixed) | | 1.84E-01 | lb/MMscf | 1330207 |

**NG Internal Combustion 4SRB Engine No Controls**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **District Toxic Profile ID** | 161 | | | | |
| **Description** | NG Internal Combustion 4SRB Engine No Controls | | | | |
| **Source** | The emission factors were based on AP 42, Fifth Edition, Volume I, Chapter 3: Stationary Internal Combustion Sources, Section 2: Natural Gas-Fired Reciprocating Engines, Table 3.2-3. Assumes 1,000 Btu's per scf natural gas. Use spreadsheet to determine VOC control or to use different HHV | | | | |
|  | | | | | |
| **Pollutant Name** | | **Emission Factor** | **Emission Factor Units** | **CAS#** |
| 1,1,2,2-Tetrachloroethane | | 2.53E-02 | lbs/MMscf | 79345 |
| 1,1,2-Trichloroethane | | 1.53E-02 | lbs/MMscf | 79005 |
| 1,1-Dichloroethane | | 1.13E-02 | lbs/MMscf | 75343 |
| 1,3-Butadiene | | 6.63E-01 | lbs/MMscf | 106990 |
| Acetaldehyde | | 2.79E+00 | lbs/MMscf | 75070 |
| Acrolein | | 2.63E+00 | lbs/MMscf | 107028 |
| Benzene | | 1.58E+00 | lbs/MMscf | 71432 |
| Carbon tetrachloride | | 1.77E-02 | lbs/MMscf | 56235 |
| Chlorobenzene | | 1.29E-02 | lbs/MMscf | 108907 |
| Chloroform | | 1.37E-02 | lbs/MMscf | 67663 |
| Ethyl benzene | | 2.48E-02 | lbs/MMscf | 100414 |
| Ethylene dibromide {EDB} | | 2.13E-02 | lbs/MMscf | 106934 |
| Ethylene dichloride {EDC} | | 1.13E-02 | lbs/MMscf | 107062 |
| Formaldehyde | | 2.05E+01 | lbs/MMscf | 50000 |
| Methanol | | 3.06E+00 | lbs/MMscf | 67561 |
| Methylene chloride {Dichloromethane} | | 4.12E-02 | lbs/MMscf | 75092 |
| Naphthalene | | 9.71E-02 | lbs/MMscf | 91203 |
| PAHs, total, w/o individ. components reported | | 4.39E-02 | lbs/MMscf | 1151 |
| Styrene | | 1.19E-02 | lbs/MMscf | 100425 |
| Toluene | | 5.58E-01 | lbs/MMscf | 108883 |
| Vinyl chloride | | 7.18E-03 | lbs/MMscf | 75014 |
| Xylenes (mixed) | | 1.95E-01 | lbs/MMscf | 1330207 |

**NG Internal Combustion 4SLB Engine CAT RED**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **District Toxic Profile ID** | 239 | | | | |
| **Description** | NG Internal Combustion 4SLB Engine CAT RED | | | | |
| **Source** | The emission factors derived from Table 3.2-2 (pg. 11), "Uncontrolled Emission Factors For 4-Stroke Lean-Burn Engines" in July 2000 AP 42, Fifth Edition, Volume I, Chapter 3: Stationary Internal Combustion Sources, Section 2: Natural Gas-Fired Reciprocating Engine. Assumes 1,000 Btu per scf natural gas 76% TAC reduction applied by use of catalyst | | | | |
|  | | | | | |
| **Pollutant Name** | | **Emission Factor** | **Emission Factor Units** | **CAS#** |
| 1,1,2,2-Tetrachloroethane | | 9.60E-03 | lb/MMscf | 79345 |
| 1,1,2-Trichloroethane | | 7.63E-03 | lb/MMscf | 79005 |
| 1,1-Dichloroethane | | 5.66E-03 | lb/MMscf | 75343 |
| 1,2,4-Trimethylbenzene | | 3.43E-03 | lb/MMscf | 95636 |
| 1,3-Butadiene | | 6.41E-02 | lb/MMscf | 106990 |
| 2,2,4-Trimethylpentane | | 6.00E-02 | lb/MMscf | 540841 |
| 2-Methyl naphthalene | | 7.97E-03 | lb/MMscf | 91576 |
| Acenaphthene | | 3.00E-04 | lb/MMscf | 83329 |
| Acenaphthylene | | 1.33E-03 | lb/MMscf | 208968 |
| Acetaldehyde | | 2.01E+00 | lb/MMscf | 75070 |
| Acrolein | | 1.23E+00 | lb/MMscf | 107028 |
| Benzene | | 1.06E-01 | lb/MMscf | 71432 |
| Benzo[b]fluoranthene | | 3.98E-05 | lb/MMscf | 205992 |
| Benzo[e]pyrene | | 9.96E-05 | lb/MMscf | 192972 |
| Benzo[g,h,i]perylene | | 9.94E-05 | lb/MMscf | 191242 |
| Biphenyl | | 5.09E-02 | lb/MMscf | 92524 |
| Carbon tetrachloride | | 8.81E-03 | lb/MMscf | 56235 |
| Chlorobenzene | | 7.30E-03 | lb/MMscf | 108907 |
| Chloroform | | 6.84E-03 | lb/MMscf | 67663 |
| Chrysene | | 1.66E-04 | lb/MMscf | 218019 |
| Ethyl benzene | | 9.53E-03 | lb/MMscf | 100414 |
| Ethylene dibromide {EDB} | | 1.06E-02 | lb/MMscf | 106934 |
| Ethylene dichloride {EDC} | | 5.66E-03 | lb/MMscf | 107062 |
| Fluoranthene | | 2.66E-04 | lb/MMscf | 206440 |
| Fluorene | | 1.36E-03 | lb/MMscf | 86737 |
| Formaldehyde | | 1.27E+01 | lb/MMscf | 50000 |
| Hexane | | 2.66E-01 | lb/MMscf | 110543 |
| Methanol | | 6.00E-01 | lb/MMscf | 67561 |
| Methylene chloride {Dichloromethane} | | 4.80E-03 | lb/MMscf | 75092 |
| Naphthalene | | 1.79E-02 | lb/MMscf | 91203 |
| PAHs, total, w/o individ. components reported | | 1.86E-03 | lb/MMscf | 1151 |
| Phenanthrene | | 2.50E-03 | lb/MMscf | 85018 |
| Phenol | | 5.76E-03 | lb/MMscf | 108952 |
| Pyrene | | 3.26E-04 | lb/MMscf | 129000 |
| Styrene | | 5.66E-03 | lb/MMscf | 100425 |
| Toluene | | 9.79E-02 | lb/MMscf | 108883 |
| Vinyl chloride | | 3.58E-03 | lb/MMscf | 75014 |
| Xylenes (mixed) | | 4.42E-02 | lb/MMscf | 1330207 |

**NG Internal Combustion 4SRB Engine CAT RED**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **District Toxic Profile ID** | 240 | | | | |
| **Description** | NG Internal Combustion 4SRB Engine CAT RED | | | | |
| **Source** | The emission factors derived from Table 3.2-3 (pg. 15), "Uncontrolled Emission Factors For 4-Stroke Rich-Burn Engines" in July 2000 AP 42, Fifth Edition, Volume I, Chapter 3: Stationary Internal Combustion Sources, Section 2: Natural Gas-Fired Reciprocating Engine. Assumes 1,000 Btu's per scf natural gas. 76% TAC reduction applies by use of catalyst | | | | |
|  | | | | | |
| **Pollutant Name** | | **Emission Factor** | **Emission Factor Units** | **CAS#** |
| 1,1,2,2-Tetrachloroethane | | 6.07E-03 | lb/MMscf | 79345 |
| 1,1,2-Trichloroethane | | 3.67E-03 | lb/MMscf | 79005 |
| 1,1-Dichloroethane | | 2.71E-03 | lb/MMscf | 75343 |
| 1,3-Butadiene | | 1.59E-01 | lb/MMscf | 106990 |
| Acetaldehyde | | 6.70E-01 | lb/MMscf | 75070 |
| Acrolein | | 6.31E-01 | lb/MMscf | 107028 |
| Benzene | | 3.79E-01 | lb/MMscf | 71432 |
| Carbon tetrachloride | | 4.25E-03 | lb/MMscf | 56235 |
| Chlorobenzene | | 3.10E-03 | lb/MMscf | 108907 |
| Chloroform | | 3.29E-03 | lb/MMscf | 67663 |
| Ethyl benzene | | 5.95E-03 | lb/MMscf | 100414 |
| Ethylene dibromide {EDB} | | 5.11E-03 | lb/MMscf | 106934 |
| Ethylene dichloride {EDC} | | 2.71E-03 | lb/MMscf | 107062 |
| Formaldehyde | | 4.92E+00 | lb/MMscf | 50000 |
| Methanol | | 7.34E-01 | lb/MMscf | 67561 |
| Methylene chloride {Dichloromethane} | | 9.89E-03 | lb/MMscf | 75092 |
| Naphthalene | | 2.33E-02 | lb/MMscf | 91203 |
| PAHs, total, w/o individ. components reported | | 1.05E-02 | lb/MMscf | 1151 |
| Styrene | | 2.86E-03 | lb/MMscf | 100425 |
| Toluene | | 1.34E-01 | lb/MMscf | 108883 |
| Vinyl chloride | | 1.72E-03 | lb/MMscf | 75014 |
| Xylenes (mixed) | | 4.68E-02 | lb/MMscf | 1330207 |

**NG Internal Combustion - Turbine w/o Catalyst**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **District Toxic Profile ID** | 162 | | | | |
| **Description** | NG Internal Combustion - Turbine w/o Catalyst | | | | |
| **Source** | The emission factors were based on AP 42, Fifth Edition, Volume I, Chapter 3: Stationary Internal Combustion Sources, Section 3: Stationary Gas Turbines, Table 3.1-3. Assumes 1,000 Btu's per scf natural gas. | | | | |
|  | | | | | |
| **Pollutant Name** | | **Emission Factor** | **Emission Factor Units** | **CAS#** |
| 1,3-Butadiene | | 4.30E-04 | lb/MMscf | 106990 |
| Acetaldehyde | | 4.00E-02 | lb/MMscf | 75070 |
| Acrolein | | 6.40E-03 | lb/MMscf | 107028 |
| Benzene | | 1.20E-02 | lb/MMscf | 71432 |
| Ethyl benzene | | 3.20E-02 | lb/MMscf | 100414 |
| Formaldehyde | | 7.10E-01 | lb/MMscf | 50000 |
| Naphthalene | | 1.30E-03 | lb/MMscf | 91203 |
| PAHs, total, with individ. components also reported | | 2.20E-03 | lb/MMscf | 1150 |
| Propylene oxide | | 2.90E-02 | lb/MMscf | 75569 |
| Toluene | | 1.30E-01 | lb/MMscf | 108883 |
| Xylenes (mixed) | | 6.40E-02 | lb/MMscf | 1330207 |

**NG Internal Combustion - Turbine w/ Catalyst**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **District Toxic Profile ID** | 163 | | | | |
| **Description** | NG Internal Combustion - Turbine w/ Catalyst | | | | |
| **Source** | The emission factors were based on AP 42, Fifth Edition, Volume I, Chapter 3: Stationary Internal Combustion Sources, Section 3: Stationary Gas Turbines, Table 3.1-3. Assumes 1,000 Btu's per scf natural gas. | | | | |
|  | | | | | |
| **Pollutant Name** | | **Emission Factor** | **Emission Factor Units** | **CAS#** |
| 1,3-Butadiene | | 4.30E-04 | lbs/MMscf | 106990 |
| Acetaldehyde | | 4.00E-02 | lbs/MMscf | 75070 |
| Acrolein | | 6.40E-03 | lbs/MMscf | 107028 |
| Benzene | | 9.10E-04 | lbs/MMscf | 71432 |
| Ethyl benzene | | 3.20E-02 | lbs/MMscf | 100414 |
| Formaldehyde | | 2.00E-02 | lbs/MMscf | 50000 |
| Naphthalene | | 1.30E-03 | lbs/MMscf | 91203 |
| PAHs, total, with individ. components also reported | | 2.20E-03 | lbs/MMscf | 1150 |
| Propylene oxide | | 2.90E-02 | lbs/MMscf | 75569 |
| Toluene | | 1.30E-01 | lbs/MMscf | 108883 |
| Xylenes (mixed) | | 6.40E-02 | lbs/MMscf | 1330207 |

**Z1 SU Digester Gas ICE (Farm Waste, Not Dairy)**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **District Toxic Profile ID** | 49 | | | | |
| **Description** | Z1 SU Digester Gas ICE (Farm Waste, Not Dairy) | | | | |
| **Source** | The emission factors are derived from the 2002 Reciprocating Internal Combustion Engine (RICE) EPA database (see Alpha-Gamma Technologies Memo for digester gas emission factor tables). The District uses a heating value of 600 btu/scf for digester gas. | | | | |
|  | | | | | |
| **Pollutant Name** | | **Emission Factor** | **Emission Factor Units** | **CAS#** |
| 1,3-Butadiene | | 2.43E-02 | lb/MMscf burned | 106990 |
| 1,4-Dioxane | | 8.70E-03 | lb/MMscf burned | 123911 |
| Acetaldehyde | | 6.24E-02 | lb/MMscf burned | 75070 |
| Acrolein | | 1.42E-02 | lb/MMscf burned | 107028 |
| Benzene | | 1.70E+00 | lb/MMscf burned | 71432 |
| Carbon tetrachloride | | 4.44E-03 | lb/MMscf burned | 56235 |
| Chloroform | | 8.82E-03 | lb/MMscf burned | 67663 |
| Ethylene dibromide {EDB} | | 4.36E-03 | lb/MMscf burned | 106934 |
| Ethylene dichloride {EDC} | | 4.42E-03 | lb/MMscf burned | 107062 |
| Formaldehyde | | 1.80E+00 | lb/MMscf burned | 50000 |
| Methyl chloroform {1,1,1-TCA} | | 8.88E-03 | lb/MMscf burned | 71556 |
| Methylene chloride {Dichloromethane} | | 8.76E-02 | lb/MMscf burned | 75092 |
| p-Dichlorobenzene | | 4.28E-02 | lb/MMscf burned | 106467 |
| Perchloroethylene {Tetrachloroethene} | | 9.00E-03 | lb/MMscf burned | 127184 |
| Styrene | | 3.31E-02 | lb/MMscf burned | 100425 |
| Toluene | | 7.44E-01 | lb/MMscf burned | 108883 |
| Trichloroethylene | | 8.76E-03 | lb/MMscf burned | 79016 |
| Vinyl chloride | | 1.14E-02 | lb/MMscf burned | 75014 |
| Vinylidene chloride | | 4.51E-03 | lb/MMscf burned | 75354 |
| Xylenes (mixed) | | 1.60E-01 | lb/MMscf burned | 1330207 |

**Z1 SU Digester Gas Turbine (Farm Waste and WW)**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **District Toxic Profile ID** | 130 | | | | |
| **Description** | Z1 SU Digester Gas Turbine(Farm Waste and WW) | | | | |
| **Source** | The emission factors are from table 3.1.7 and 3.1.8 (pg. 17,18) in April 2000 AP42 3.1 Stationary Gas Turbines. The District uses a Digester Gas Heating Value of 600 Btu/scf. | | | | |
|  | | | | | |
| **Pollutant Name** | | **Emission Factor** | **Emission Factor Units** | **CAS#** |
| 1,3-Butadiene | | 5.88E-03 | lb/MMscf burned | 106990 |
| Acetaldehyde | | 3.18E-02 | lb/MMscf burned | 75070 |
| Arsenic | | 1.38E-03 | lb/MMscf burned | 7440382 |
| Cadmium | | 3.48E-04 | lb/MMscf burned | 7440439 |
| Carbon tetrachloride | | 1.20E-02 | lb/MMscf burned | 56235 |
| Chlorobenzene | | 9.60E-03 | lb/MMscf burned | 108907 |
| Chloroform | | 1.02E-02 | lb/MMscf burned | 67663 |
| Chromium | | 7.20E-04 | lb/MMscf burned | 7440473 |
| Chromium, hexavalent (& compounds) | | 3.60E-05 | lb/MMscf burned | 18540299 |
| Ethylene dichloride {EDC} | | 9.00E-03 | lb/MMscf burned | 107062 |
| Formaldehyde | | 1.14E-01 | lb/MMscf burned | 50000 |
| Lead | | 2.04E-03 | lb/MMscf burned | 7439921 |
| Methylene chloride {Dichloromethane} | | 7.80E-03 | lb/MMscf burned | 75092 |
| Nickel | | 1.20E-03 | lb/MMscf burned | 7440020 |
| p-Dichlorobenzene | | 1.20E-02 | lb/MMscf burned | 106467 |
| Perchloroethylene {Tetrachloroethene} | | 1.26E-02 | lb/MMscf burned | 127184 |
| Selenium | | 6.60E-03 | lb/MMscf burned | 7782492 |
| Trichloroethylene | | 1.08E-02 | lb/MMscf burned | 79016 |
| Vinyl chloride | | 2.16E-02 | lb/MMscf burned | 75014 |
| Vinylidene chloride | | 9.00E-03 | lb/MMscf burned | 75354 |

***Mineral***

**Aggregate Batch Plant**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **District Toxic Profile ID** | 39 | | | | |
| **Description** | Aggregate Batch Plant | | | | |
| **Source** | The emission factors are from the table, "DEFAULT VALUES - TRACE METAL CONCENTRATIONS" in the November 1998 San Diego Air Pollution Control District document, Aggregate Crushing Operations. | | | | |
|  | | | | | |
| **Pollutant Name** | | **Emission Factor** | **Emission Factor Units** | **CAS#** |
| Aluminum | | 1.50E-02 | lb/lb PM10 | 7429905 |
| Arsenic | | 2.20E-05 | lb/lb PM10 | 7440382 |
| Barium | | 2.25E-04 | lb/lb PM10 | 7440393 |
| Beryllium | | 1.00E-06 | lb/lb PM10 | 7440417 |
| Cadmium | | 1.00E-06 | lb/lb PM10 | 7440439 |
| Chromium | | 2.80E-05 | lb/lb PM10 | 7440473 |
| Chromium, hexavalent (& compounds) | | 1.40E-06 | lb/lb PM10 | 18540299 |
| Cobalt | | 1.10E-05 | lb/lb PM10 | 7440484 |
| Copper | | 3.70E-05 | lb/lb PM10 | 7440508 |
| Lead | | 5.00E-05 | lb/lb PM10 | 7439921 |
| Manganese | | 5.30E-04 | lb/lb PM10 | 7439965 |
| Nickel | | 2.80E-05 | lb/lb PM10 | 7440020 |
| Selenium | | 1.00E-06 | lb/lb PM10 | 7782492 |
| Silica, crystalline | | 6.38E-02 | lb/lb PM 10 | 1175 |
| Zinc | | 9.90E-05 | lb/lb PM10 | 7440666 |

**Aggregate Piles**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **District Toxic Profile ID** | 207 | | | | |
| **Description** | Aggregate Piles | | | | |
| **Source** | The emission factors are from the table, "DEFAULT VALUES - Material Storage" in the December 1998 San Diego Air Pollution Control District document, Open Material Storage Areas. | | | | |
|  | | | | | |
| **Pollutant Name** | | **Emission Factor** | **Emission Factor Units** | **CAS#** |
| Arsenic | | 2.00E-05 | lb/lb PM10 | 7440382 |
| Beryllium | | 1.00E-06 | lb/lb PM10 | 7440417 |
| Cadmium | | 1.00E-06 | lb/lb PM10 | 7440439 |
| Chromium | | 5.00E-05 | lb/lb PM10 | 7440473 |
| Chromium, hexavalent (& compounds) | | 2.50E-06 | lb/lb PM10 | 18540299 |
| Copper | | 1.00E-04 | lb/lb PM10 | 7440508 |
| Lead | | 5.00E-05 | lb/lb PM10 | 7439921 |
| Manganese | | 5.00E-04 | lb/lb PM10 | 7439965 |
| Nickel | | 2.00E-05 | lb/lb PM10 | 7440020 |
| Selenium | | 5.00E-06 | lb/lb PM10 | 7782492 |
| Zinc | | 2.00E-04 | lb/lb PM10 | 7440666 |

**Asphalt Batch Plant Batch Mix HM NG or #2 Fuel Oil**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **District Toxic Profile ID** | 167 | | | | |
| **Description** | Asphalt Batch Plant Batch Mix HM NG or #2 Fuel Oil | | | | |
| **Source** | Emission factors are from tables 11.1-9 (pg. 19) and 11.1-11 (pg. 29) in March 2004 AP 42 Chapter 11 Mineral Products Industry, Section 1 Hot Mix Asphalt Plants. | | | | |
|  | | | | | |
| **Pollutant Name** | | **Emission Factor** | **Emission Factor Units** | **CAS#** |
| 2-Methyl naphthalene | | 7.10E-05 | lbs/ton asphalt produced | 91576 |
| Acenaphthene | | 9.00E-07 | lbs/ton asphalt produced | 83329 |
| Acenaphthylene | | 5.80E-07 | lbs/ton asphalt produced | 208968 |
| Acetaldehyde | | 3.20E-04 | lbs/ton asphalt produced | 75070 |
| Anthracene | | 2.10E-07 | lbs/ton asphalt produced | 120127 |
| Arsenic | | 4.60E-07 | lbs/ton asphalt produced | 7440382 |
| Barium | | 1.50E-06 | lbs/ton asphalt produced | 7440393 |
| Benz[a]anthracene | | 4.60E-09 | lbs/ton asphalt produced | 56553 |
| Benzene | | 2.80E-04 | lbs/ton asphalt produced | 71432 |
| Benzo[a]pyrene | | 3.10E-10 | lbs/ton asphalt produced | 50328 |
| Benzo[b]fluoranthene | | 9.40E-09 | lbs/ton asphalt produced | 205992 |
| Benzo[g,h,i]perylene | | 5.00E-10 | lbs/ton asphalt produced | 191242 |
| Benzo[k]fluoranthene | | 1.30E-08 | lbs/ton asphalt produced | 207089 |
| Beryllium | | 1.50E-07 | lbs/ton asphalt produced | 7440417 |
| Cadmium | | 6.10E-07 | lbs/ton asphalt produced | 7440439 |
| Chromium | | 5.70E-07 | lbs/ton asphalt produced | 7440473 |
| Chromium, hexavalent (& compounds) | | 4.80E-08 | lbs/ton asphalt produced | 18540299 |
| Chrysene | | 3.80E-09 | lbs/ton asphalt produced | 218019 |
| Copper | | 2.80E-06 | lbs/ton asphalt produced | 7440508 |
| Crotonaldehyde | | 2.90E-05 | lbs/ton asphalt produced | 4170303 |
| Dibenz[a,h]anthracene | | 9.50E-11 | lbs/ton asphalt produced | 53703 |
| Ethyl benzene | | 2.20E-03 | lbs/ton asphalt produced | 100414 |
| Fluoranthene | | 1.60E-07 | lbs/ton asphalt produced | 206440 |
| Fluorene | | 1.60E-06 | lbs/ton asphalt produced | 86737 |
| Formaldehyde | | 7.40E-04 | lbs/ton asphalt produced | 50000 |
| Indeno[1,2,3-cd]pyrene | | 3.00E-10 | lbs/ton asphalt produced | 193395 |
| Isobutyraldehyde | | 3.00E-05 | lbs/ton asphalt produced | 78842 |
| Lead | | 8.90E-07 | lbs/ton asphalt produced | 7439921 |
| Manganese | | 6.90E-06 | lbs/ton asphalt produced | 7439965 |
| Mercury | | 4.10E-07 | lbs/ton asphalt produced | 7439976 |
| Naphthalene | | 3.60E-05 | lbs/ton asphalt produced | 91203 |
| Nickel | | 3.00E-06 | lbs/ton asphalt produced | 7440020 |
| Phenanthrene | | 2.60E-06 | lbs/ton asphalt produced | 85018 |
| Pyrene | | 6.20E-08 | lbs/ton asphalt produced | 129000 |
| Quinone | | 2.70E-04 | lbs/ton asphalt produced | 106514 |
| Selenium | | 4.90E-07 | lbs/ton asphalt produced | 7782492 |
| Toluene | | 1.00E-03 | lbs/ton asphalt produced | 108883 |
| Xylenes (mixed) | | 2.70E-03 | lbs/ton asphalt produced | 1330207 |
| Zinc | | 6.80E-06 | lbs/ton asphalt produced | 7440666 |

**Asphalt Batch Plant Batch Mix HM Oil Fired**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **District Toxic Profile ID** | 168 | | | | |
| **Description** | Asphalt Batch Plant Batch Mix HM Oil Fired | | | | |
| **Source** | Emission factors are from tables 11.1-9 (pg. 19) and 11.1-11 (pg. 29) in March 2004 AP 42 Chapter 11 Mineral Products Industry, Section 1 Hot Mix Asphalt Plants. | | | | |
|  | | | | | |
| **Pollutant Name** | | **Emission Factor** | **Emission Factor Units** | **CAS#** |
| 2-Methyl naphthalene | | 7.10E-05 | lbs/ton asphalt produced | 91576 |
| Acenaphthene | | 9.00E-07 | lbs/ton asphalt produced | 83329 |
| Acenaphthylene | | 5.80E-07 | lbs/ton asphalt produced | 208968 |
| Acetaldehyde | | 3.20E-04 | lbs/ton asphalt produced | 75070 |
| Anthracene | | 2.10E-07 | lbs/ton asphalt produced | 120127 |
| Arsenic | | 4.60E-07 | lbs/ton asphalt produced | 7440382 |
| Barium | | 1.50E-06 | lbs/ton asphalt produced | 7440393 |
| Benz[a]anthracene | | 4.60E-09 | lbs/ton asphalt produced | 56553 |
| Benzene | | 2.80E-04 | lbs/ton asphalt produced | 71432 |
| Benzo[a]pyrene | | 3.10E-10 | lbs/ton asphalt produced | 50328 |
| Benzo[b]fluoranthene | | 9.40E-09 | lbs/ton asphalt produced | 205992 |
| Benzo[g,h,i]perylene | | 5.00E-10 | lbs/ton asphalt produced | 191242 |
| Benzo[k]fluoranthene | | 1.30E-08 | lbs/ton asphalt produced | 207089 |
| Beryllium | | 1.50E-07 | lbs/ton asphalt produced | 7440417 |
| Cadmium | | 6.10E-07 | lbs/ton asphalt produced | 7440439 |
| Chromium | | 5.70E-07 | lbs/ton asphalt produced | 7440473 |
| Chromium, hexavalent (& compounds) | | 4.80E-08 | lbs/ton asphalt produced | 18540299 |
| Chrysene | | 3.80E-09 | lbs/ton asphalt produced | 218019 |
| Copper | | 2.80E-06 | lbs/ton asphalt produced | 7440508 |
| Crotonaldehyde | | 2.90E-05 | lbs/ton asphalt produced | 4170303 |
| Dibenz[a,h]anthracene | | 9.50E-11 | lbs/ton asphalt produced | 53703 |
| Ethyl benzene | | 2.20E-03 | lbs/ton asphalt produced | 100414 |
| Fluoranthene | | 2.40E-05 | lbs/ton asphalt produced | 206440 |
| Fluorene | | 1.60E-06 | lbs/ton asphalt produced | 86737 |
| Formaldehyde | | 7.40E-04 | lbs/ton asphalt produced | 50000 |
| Indeno[1,2,3-cd]pyrene | | 3.00E-10 | lbs/ton asphalt produced | 193395 |
| Isobutyraldehyde | | 3.00E-05 | lbs/ton asphalt produced | 78842 |
| Lead | | 8.90E-07 | lbs/ton asphalt produced | 7439921 |
| Manganese | | 6.90E-06 | lbs/ton asphalt produced | 7439965 |
| Mercury | | 4.10E-07 | lbs/ton asphalt produced | 7439976 |
| Naphthalene | | 3.60E-05 | lbs/ton asphalt produced | 91203 |
| Nickel | | 3.00E-06 | lbs/ton asphalt produced | 7440020 |
| Phenanthrene | | 3.70E-05 | lbs/ton asphalt produced | 85018 |
| Pyrene | | 5.50E-05 | lbs/ton asphalt produced | 129000 |
| Quinone | | 2.70E-04 | lbs/ton asphalt produced | 106514 |
| Selenium | | 4.90E-07 | lbs/ton asphalt produced | 7782492 |
| Toluene | | 1.00E-03 | lbs/ton asphalt produced | 108883 |
| Xylenes (mixed) | | 2.70E-03 | lbs/ton asphalt produced | 1330207 |
| Zinc | | 6.80E-06 | lbs/ton asphalt produced | 7440666 |

**Asphalt Batch Plant Drum Mix HM Fuel Oil**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **District Toxic Profile ID** | 170 | | | | |
| **Description** | Asphalt Batch Plant Drum Mix HM Fuel Oil | | | | |
| **Source** | Emission factors are from tables 11.1-10 (pg. 21) and 11.1-12 (pg. 30) in March 2004 AP 42 Chapter 11 Mineral Products Industry, Section 1 Hot Mix Asphalt Plants. | | | | |
|  | | | | | |
| **Pollutant Name** | | **Emission Factor** | **Emission Factor Units** | **CAS#** |
| 1,2,3,4,5,6,7,8-Octachlorodibenzofuran | | 4.80E-12 | lbs/ton asphalt produced | 39001020 |
| 1,2,3,4,5,6,7,8-Octachlorodibenzo-p-dioxin | | 2.50E-11 | lbs/ton asphalt produced | 3268879 |
| 1,2,3,4,6,7,8-Heptachlorodibenzofuran | | 6.50E-12 | lbs/ton asphalt produced | 67562394 |
| 1,2,3,4,6,7,8-Heptachlorodibenzo-p-dioxin | | 4.80E-12 | lbs/ton asphalt produced | 35822469 |
| 1,2,3,4,7,8,9-Heptachlorodibenzofuran | | 2.70E-12 | lbs/ton asphalt produced | 55673897 |
| 1,2,3,4,7,8-Hexachlorodibenzofuran | | 4.00E-12 | lbs/ton asphalt produced | 70648269 |
| 1,2,3,4,7,8-Hexachlorodibenzo-p-dioxin | | 4.20E-13 | lbs/ton asphalt produced | 39227286 |
| 1,2,3,6,7,8-Hexachlorodibenzofuran | | 1.20E-12 | lbs/ton asphalt produced | 57117449 |
| 1,2,3,6,7,8-Hexachlorodibenzo-p-dioxin | | 1.30E-12 | lbs/ton asphalt produced | 57653857 |
| 1,2,3,7,8,9-Hexachlorodibenzofuran | | 8.40E-12 | lbs/ton asphalt produced | 72918219 |
| 1,2,3,7,8,9-Hexachlorodibenzo-p-dioxin | | 9.80E-13 | lbs/ton asphalt produced | 19408743 |
| 1,2,3,7,8-Pentachlorodibenzofuran | | 4.30E-12 | lbs/ton asphalt produced | 57117416 |
| 1,2,3,7,8-Pentachlorodibenzo-p-dioxin | | 3.10E-13 | lbs/ton asphalt produced | 40321764 |
| 2,2,4-Trimethylpentane | | 4.00E-05 | lbs/ton asphalt produced | 540841 |
| 2,3,4,6,7,8-Hexachlorodibenzofuran | | 1.90E-12 | lbs/ton asphalt produced | 60851345 |
| 2,3,4,7,8-Pentachlorodibenzofuran | | 8.40E-13 | lbs/ton asphalt produced | 57117314 |
| 2,3,7,8-Tetrachlorodibenzofuran | | 9.70E-13 | lbs/ton asphalt produced | 51207319 |
| 2,3,7,8-Tetrachlorodibenzo-p-dioxin | | 2.10E-13 | lbs/ton asphalt produced | 1746016 |
| 2-Methyl naphthalene | | 1.70E-04 | lbs/ton asphalt produced | 91576 |
| Acenaphthene | | 1.40E-06 | lbs/ton asphalt produced | 83329 |
| Acenaphthylene | | 2.20E-05 | lbs/ton asphalt produced | 208968 |
| Anthracene | | 3.10E-06 | lbs/ton asphalt produced | 120127 |
| Antimony | | 1.80E-07 | lbs/ton asphalt produced | 7440360 |
| Arsenic | | 5.60E-07 | lbs/ton asphalt produced | 7440382 |
| Barium | | 5.80E-06 | lbs/ton asphalt produced | 7440393 |
| Benz[a]anthracene | | 2.10E-07 | lbs/ton asphalt produced | 56553 |
| Benzene | | 3.90E-04 | lbs/ton asphalt produced | 71432 |
| Benzo[a]pyrene | | 9.80E-09 | lbs/ton asphalt produced | 50328 |
| Benzo[b]fluoranthene | | 1.00E-07 | lbs/ton asphalt produced | 205992 |
| Benzo[e]pyrene | | 1.10E-07 | lbs/ton asphalt produced | 192972 |
| Benzo[g,h,i]perylene | | 4.00E-08 | lbs/ton asphalt produced | 191242 |
| Benzo[k]fluoranthene | | 4.10E-08 | lbs/ton asphalt produced | 207089 |
| Cadmium | | 4.10E-07 | lbs/ton asphalt produced | 7440439 |
| Chromium | | 5.50E-06 | lbs/ton asphalt produced | 7440473 |
| Chromium, hexavalent (& compounds) | | 4.50E-07 | lbs/ton asphalt produced | 18540299 |
| Chrysene | | 1.80E-07 | lbs/ton asphalt produced | 218019 |
| Cobalt | | 2.60E-08 | lbs/ton asphalt produced | 7440484 |
| Copper | | 3.10E-06 | lbs/ton asphalt produced | 7440508 |
| Ethyl benzene | | 2.40E-04 | lbs/ton asphalt produced | 100414 |
| Ethylene | | 7.00E-03 | lbs/ton asphalt produced | 74851 |
| Fluoranthene | | 6.10E-07 | lbs/ton asphalt produced | 206440 |
| Fluorene | | 1.10E-05 | lbs/ton asphalt produced | 86737 |
| Formaldehyde | | 3.10E-03 | lbs/ton asphalt produced | 50000 |
| Hexane | | 9.20E-04 | lbs/ton asphalt produced | 110543 |
| Indeno[1,2,3-cd]pyrene | | 7.00E-09 | lbs/ton asphalt produced | 193395 |
| Lead | | 1.50E-05 | lbs/ton asphalt produced | 7439921 |
| Manganese | | 7.70E-06 | lbs/ton asphalt produced | 7439965 |
| Mercury | | 2.60E-06 | lbs/ton asphalt produced | 7439976 |
| Methyl chloroform {1,1,1-TCA} | | 4.80E-05 | lbs/ton asphalt produced | 71556 |
| Naphthalene | | 6.50E-04 | lbs/ton asphalt produced | 91203 |
| Nickel | | 6.30E-05 | lbs/ton asphalt produced | 7440020 |
| Perylene | | 8.80E-09 | lbs/ton asphalt produced | 198550 |
| Phenanthrene | | 2.30E-05 | lbs/ton asphalt produced | 85018 |
| Phosphorus | | 2.80E-05 | lbs/ton asphalt produced | 7723140 |
| Pyrene | | 3.00E-06 | lbs/ton asphalt produced | 129000 |
| Selenium | | 3.50E-07 | lbs/ton asphalt produced | 7782492 |
| Silver | | 4.80E-07 | lbs/ton asphalt produced | 7440224 |
| Thallium | | 4.10E-09 | lbs/ton asphalt produced | 7440280 |
| Toluene | | 2.90E-03 | lbs/ton asphalt produced | 108883 |
| Total Heptachlorodibenzofuran | | 1.00E-11 | lbs/ton asphalt produced | 38998753 |
| Total Heptachlorodibenzo-p-dioxin | | 1.90E-11 | lbs/ton asphalt produced | 37871004 |
| Total Hexachlorodibenzofuran | | 1.30E-11 | lbs/ton asphalt produced | 55684941 |
| Total Hexachlorodibenzo-p-dioxin | | 1.20E-11 | lbs/ton asphalt produced | 34465468 |
| Total Pentachlorodibenzofuran | | 8.40E-11 | lbs/ton asphalt produced | 30402154 |
| Total Pentachlorodibenzo-p-dioxin | | 2.20E-11 | lbs/ton asphalt produced | 36088229 |
| Total Tetrachlorodibenzofuran | | 3.70E-12 | lbs/ton asphalt produced | 55722275 |
| Total Tetrachlorodibenzo-p-dioxin | | 9.30E-13 | lbs/ton asphalt produced | 41903575 |
| Xylenes (mixed) | | 2.00E-04 | lbs/ton asphalt produced | 1330207 |
| Zinc | | 6.10E-05 | lbs/ton asphalt produced | 7440666 |

**Asphalt Batch Plant Drum Mix HM Natural Gas**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **District Toxic Profile ID** | 169 | | | | |
| **Description** | Asphalt Batch Plant Drum Mix HM Natural Gas | | | | |
| **Source** | Emission factors are from tables 11.1-10 (pg. 21) and 11.1-12 (pg. 30) in March 2004 AP 42 Chapter 11 Mineral Products Industry, Section 1 Hot Mix Asphalt Plants. | | | | |
|  | | | | | |
| **Pollutant Name** | | **Emission Factor** | **Emission Factor Units** | **CAS#** |
| 2,2,4-Trimethylpentane | | 4.00E-05 | lbs/ton asphalt produced | 540841 |
| 2-Methyl naphthalene | | 7.40E-05 | lbs/ton asphalt produced | 91576 |
| Acenaphthene | | 1.40E-06 | lbs/ton asphalt produced | 83329 |
| Acenaphthylene | | 8.60E-06 | lbs/ton asphalt produced | 208968 |
| Anthracene | | 2.20E-07 | lbs/ton asphalt produced | 120127 |
| Antimony | | 1.80E-07 | lbs/ton asphalt produced | 7440360 |
| Arsenic | | 5.60E-07 | lbs/ton asphalt produced | 7440382 |
| Barium | | 5.80E-06 | lbs/ton asphalt produced | 7440393 |
| Benz[a]anthracene | | 2.10E-07 | lbs/ton asphalt produced | 56553 |
| Benzene | | 3.90E-04 | lbs/ton asphalt produced | 71432 |
| Benzo[a]pyrene | | 9.80E-09 | lbs/ton asphalt produced | 50328 |
| Benzo[b]fluoranthene | | 1.00E-07 | lbs/ton asphalt produced | 205992 |
| Benzo[g,h,i]perylene | | 4.00E-08 | lbs/ton asphalt produced | 191242 |
| Benzo[k]fluoranthene | | 4.10E-08 | lbs/ton asphalt produced | 207089 |
| Cadmium | | 4.10E-07 | lbs/ton asphalt produced | 7440439 |
| Chromium | | 5.50E-06 | lbs/ton asphalt produced | 7440473 |
| Chromium, hexavalent (& compounds) | | 4.50E-07 | lbs/ton asphalt produced | 18540299 |
| Chrysene | | 1.80E-07 | lbs/ton asphalt produced | 218019 |
| Cobalt | | 2.60E-08 | lbs/ton asphalt produced | 7440484 |
| Copper | | 3.10E-06 | lbs/ton asphalt produced | 7440508 |
| Ethyl benzene | | 2.40E-04 | lbs/ton asphalt produced | 100414 |
| Ethylene | | 7.00E-03 | lbs/ton asphalt produced | 74851 |
| Fluoranthene | | 6.10E-07 | lbs/ton asphalt produced | 206440 |
| Fluorene | | 3.80E-06 | lbs/ton asphalt produced | 86737 |
| Formaldehyde | | 3.10E-03 | lbs/ton asphalt produced | 50000 |
| Hexane | | 9.20E-04 | lbs/ton asphalt produced | 110543 |
| Indeno[1,2,3-cd]pyrene | | 7.00E-09 | lbs/ton asphalt produced | 193395 |
| Lead | | 6.20E-07 | lbs/ton asphalt produced | 7439921 |
| Manganese | | 7.70E-06 | lbs/ton asphalt produced | 7439965 |
| Mercury | | 2.40E-07 | lbs/ton asphalt produced | 7439976 |
| Methyl chloroform {1,1,1-TCA} | | 4.80E-05 | lbs/ton asphalt produced | 71556 |
| Naphthalene | | 9.00E-05 | lbs/ton asphalt produced | 91203 |
| Nickel | | 6.30E-05 | lbs/ton asphalt produced | 7440020 |
| Perylene | | 8.80E-09 | lbs/ton asphalt produced | 198550 |
| Phenanthrene | | 7.60E-06 | lbs/ton asphalt produced | 85018 |
| Phosphorus | | 2.80E-05 | lbs/ton asphalt produced | 7723140 |
| Pyrene | | 5.40E-07 | lbs/ton asphalt produced | 129000 |
| Selenium | | 3.50E-07 | lbs/ton asphalt produced | 7782492 |
| Silver | | 4.80E-07 | lbs/ton asphalt produced | 7440224 |
| Thallium | | 4.10E-09 | lbs/ton asphalt produced | 7440280 |
| Toluene | | 1.50E-04 | lbs/ton asphalt produced | 108883 |
| Xylenes (mixed) | | 2.00E-04 | lbs/ton asphalt produced | 1330207 |
| Zinc | | 6.10E-05 | lbs/ton asphalt produced | 7440666 |

**Asphalt Batch Plant Drum Mix HM Waste Oil**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **District Toxic Profile ID** | 171 | | | | |
| **Description** | Asphalt Batch Plant Drum Mix HM Waste Oil | | | | |
| **Source** | Emission factors are from tables 11.1-10 (pg. 21) and 11.1-12 (pg. 30) in March 2004 AP 42 Chapter 11 Mineral Products Industry, Section 1 Hot Mix Asphalt Plants. | | | | |
|  | | | | | |
| **Pollutant Name** | | **Emission Factor** | **Emission Factor Units** | **CAS#** |
| 1,2,3,4,5,6,7,8-Octachlorodibenzofuran | | 4.80E-12 | lbs/ton aspahlt produced | 39001020 |
| 1,2,3,4,5,6,7,8-Octachlorodibenzo-p-dioxin | | 2.50E-11 | lbs/ton aspahlt produced | 3268879 |
| 1,2,3,4,6,7,8-Heptachlorodibenzofuran | | 6.50E-12 | lbs/ton aspahlt produced | 67562394 |
| 1,2,3,4,6,7,8-Heptachlorodibenzo-p-dioxin | | 4.80E-12 | lbs/ton aspahlt produced | 35822469 |
| 1,2,3,4,7,8,9-Heptachlorodibenzofuran | | 2.70E-12 | lbs/ton aspahlt produced | 55673897 |
| 1,2,3,4,7,8-Hexachlorodibenzofuran | | 4.00E-12 | lbs/ton aspahlt produced | 70648269 |
| 1,2,3,4,7,8-Hexachlorodibenzo-p-dioxin | | 4.20E-13 | lbs/ton aspahlt produced | 39227286 |
| 1,2,3,6,7,8-Hexachlorodibenzofuran | | 1.20E-12 | lbs/ton aspahlt produced | 57117449 |
| 1,2,3,6,7,8-Hexachlorodibenzo-p-dioxin | | 1.30E-12 | lbs/ton aspahlt produced | 57653857 |
| 1,2,3,7,8,9-Hexachlorodibenzofuran | | 8.40E-12 | lbs/ton aspahlt produced | 72918219 |
| 1,2,3,7,8,9-Hexachlorodibenzo-p-dioxin | | 9.80E-13 | lbs/ton aspahlt produced | 19408743 |
| 1,2,3,7,8-Pentachlorodibenzofuran | | 4.30E-12 | lbs/ton aspahlt produced | 57117416 |
| 1,2,3,7,8-Pentachlorodibenzo-p-dioxin | | 3.10E-13 | lbs/ton aspahlt produced | 40321764 |
| 2,2,4-Trimethylpentane | | 4.00E-05 | lbs/ton aspahlt produced | 540841 |
| 2,3,4,6,7,8-Hexachlorodibenzofuran | | 1.90E-12 | lbs/ton aspahlt produced | 60851345 |
| 2,3,4,7,8-Pentachlorodibenzofuran | | 8.40E-13 | lbs/ton aspahlt produced | 57117314 |
| 2,3,7,8-Tetrachlorodibenzofuran | | 9.70E-13 | lbs/ton aspahlt produced | 51207319 |
| 2,3,7,8-Tetrachlorodibenzo-p-dioxin | | 2.10E-13 | lbs/ton aspahlt produced | 1746016 |
| 2-Methyl naphthalene | | 1.70E-04 | lbs/ton aspahlt produced | 91576 |
| Acenaphthene | | 1.40E-06 | lbs/ton aspahlt produced | 83329 |
| Acenaphthylene | | 2.20E-05 | lbs/ton aspahlt produced | 208968 |
| Acetaldehyde | | 1.30E-03 | lbs/ton aspahlt produced | 75070 |
| Acrolein | | 2.60E-05 | lbs/ton aspahlt produced | 107028 |
| Anthracene | | 3.10E-06 | lbs/ton aspahlt produced | 120127 |
| Antimony | | 1.80E-07 | lbs/ton aspahlt produced | 7440360 |
| Arsenic | | 5.60E-07 | lbs/ton aspahlt produced | 7440382 |
| Barium | | 5.80E-06 | lbs/ton aspahlt produced | 7440393 |
| Benz[a]anthracene | | 2.10E-07 | lbs/ton aspahlt produced | 56553 |
| Benzene | | 3.90E-04 | lbs/ton aspahlt produced | 71432 |
| Benzo[a]pyrene | | 9.80E-09 | lbs/ton aspahlt produced | 50328 |
| Benzo[b]fluoranthene | | 1.00E-07 | lbs/ton aspahlt produced | 205992 |
| Benzo[e]pyrene | | 1.10E-07 | lbs/ton aspahlt produced | 192972 |
| Benzo[g,h,i]perylene | | 4.00E-08 | lbs/ton aspahlt produced | 191242 |
| Benzo[k]fluoranthene | | 4.10E-08 | lbs/ton aspahlt produced | 207089 |
| Cadmium | | 4.10E-07 | lbs/ton aspahlt produced | 7440439 |
| Chromium | | 5.50E-06 | lbs/ton aspahlt produced | 7440473 |
| Chromium, hexavalent (& compounds) | | 4.50E-07 | lbs/ton aspahlt produced | 18540299 |
| Chrysene | | 1.80E-07 | lbs/ton aspahlt produced | 218019 |
| Cobalt | | 2.60E-08 | lbs/ton aspahlt produced | 7440484 |
| Copper | | 3.10E-06 | lbs/ton aspahlt produced | 7440508 |
| Crotonaldehyde | | 8.60E-05 | lbs/ton aspahlt produced | 4170303 |
| Ethyl benzene | | 2.40E-04 | lbs/ton aspahlt produced | 100414 |
| Ethylene | | 7.00E-03 | lbs/ton aspahlt produced | 74851 |
| Fluoranthene | | 6.10E-07 | lbs/ton aspahlt produced | 206440 |
| Fluorene | | 1.10E-05 | lbs/ton aspahlt produced | 86737 |
| Formaldehyde | | 3.10E-03 | lbs/ton aspahlt produced | 50000 |
| Hexane | | 9.20E-04 | lbs/ton aspahlt produced | 110543 |
| Indeno[1,2,3-cd]pyrene | | 7.00E-09 | lbs/ton aspahlt produced | 193395 |
| Isobutyraldehyde | | 1.60E-04 | lbs/ton aspahlt produced | 78842 |
| Lead | | 1.50E-05 | lbs/ton aspahlt produced | 7439921 |
| Manganese | | 7.70E-06 | lbs/ton aspahlt produced | 7439965 |
| Mercury | | 2.60E-06 | lbs/ton aspahlt produced | 7439976 |
| Methyl chloroform {1,1,1-TCA} | | 4.80E-05 | lbs/ton aspahlt produced | 71556 |
| Methyl ethyl ketone {2-Butanone} | | 2.00E-05 | lbs/ton aspahlt produced | 78933 |
| Naphthalene | | 6.50E-04 | lbs/ton aspahlt produced | 91203 |
| Nickel | | 6.30E-05 | lbs/ton aspahlt produced | 7440020 |
| Perylene | | 8.80E-09 | lbs/ton aspahlt produced | 198550 |
| Phenanthrene | | 2.30E-05 | lbs/ton aspahlt produced | 85018 |
| Phosphorus | | 2.80E-05 | lbs/ton aspahlt produced | 7723140 |
| Propionaldehyde | | 1.30E-04 | lbs/ton aspahlt produced | 123386 |
| Pyrene | | 3.00E-06 | lbs/ton aspahlt produced | 129000 |
| Quinone | | 1.60E-04 | lbs/ton aspahlt produced | 106514 |
| Selenium | | 3.50E-07 | lbs/ton aspahlt produced | 7782492 |
| Silver | | 4.80E-07 | lbs/ton aspahlt produced | 7440224 |
| Thallium | | 4.10E-09 | lbs/ton aspahlt produced | 7440280 |
| Toluene | | 2.90E-03 | lbs/ton aspahlt produced | 108883 |
| Total Heptachlorodibenzofuran | | 1.00E-11 | lbs/ton aspahlt produced | 38998753 |
| Total Heptachlorodibenzo-p-dioxin | | 1.90E-11 | lbs/ton aspahlt produced | 37871004 |
| Total Hexachlorodibenzofuran | | 1.30E-11 | lbs/ton aspahlt produced | 55684941 |
| Total Hexachlorodibenzo-p-dioxin | | 1.20E-11 | lbs/ton aspahlt produced | 34465468 |
| Total Pentachlorodibenzofuran | | 8.40E-11 | lbs/ton aspahlt produced | 30402154 |
| Total Pentachlorodibenzo-p-dioxin | | 2.20E-11 | lbs/ton aspahlt produced | 36088229 |
| Total Tetrachlorodibenzofuran | | 3.70E-12 | lbs/ton aspahlt produced | 55722275 |
| Total Tetrachlorodibenzo-p-dioxin | | 9.30E-13 | lbs/ton aspahlt produced | 41903575 |
| Xylenes (mixed) | | 2.00E-04 | lbs/ton aspahlt produced | 1330207 |
| Zinc | | 6.10E-05 | lbs/ton aspahlt produced | 7440666 |

**Asphalt Concrete with Rubber VOC Emissions**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **District Toxic Profile ID** | 256 | | | | |
| **Description** | Asphalt Concrete with Rubber VOC Emissions | | | | |
| **Source** | Emissions factors are derived from the 1993 Virginia Department of Transportation report, Final Air Quality Assessment Hot Mix Asphalt· Crumb Rubber Pilot Program. Test data from stack testing of an asphalt plant in Rockville, Virginia. | | | | |
|  | | | | | |
| **Pollutant Name** | | **Emission Factor** | **Emission Factor Units** | **CAS#** |
| Benzene | | 8.10E-03 | lb/lb VOC | 71432 |
| Ethyl benzene | | 3.64E-03 | lb/lb VOC | 100414 |
| PAHs, total, w/o individ. components reported | | 9.01E-03 | lb/lb VOC | 1151 |
| Styrene | | 1.17E-02 | lb/lb VOC | 100425 |
| Toluene | | 4.76E-03 | lb/lb VOC | 108883 |
| Xylenes (mixed) | | 8.61E-03 | lb/lb VOC | 1330207 |

**Asphalt Concrete w/o Rubber VOC Emissions**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **District Toxic Profile ID** | 257 | | | | |
| **Description** | Asphalt Concrete w/o Rubber VOC Emissions | | | | |
| **Source** | Emissions factors are derived from the 1993 Virginia Department of Transportation report, Final Air Quality Assessment Hot Mix Asphalt· Crumb Rubber Pilot Program. Test data from stack testing of an asphalt plant in Rockville, Virginia. | | | | |
|  | | | | | |
| **Pollutant Name** | | **Emission Factor** | **Emission Factor Units** | **CAS#** |
| Benzene | | 2.18E-02 | lb/lb VOC | 71432 |
| Ethyl benzene | | 2.26E-03 | lb/lb VOC | 100414 |
| PAHs, total, w/o individ. components reported | | 6.50E-03 | lb/lb VOC | 1151 |
| Styrene | | 1.17E-02 | lb/lb VOC | 100425 |
| Toluene | | 5.74E-03 | lb/lb VOC | 108883 |
| Xylenes (mixed) | | 5.36E-03 | lb/lb VOC | 1330207 |

**Asphalt Dust**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **District Toxic Profile ID** | 157 | | | | |
| **Description** | Asphalt Dust | | | | |
| **Source** | Emission factors are derived from a 1997 asphalt dust profile from the EPA's speciation program. | | | | |
|  | | | | | |
| **Pollutant Name** | | **Emission Factor** | **Emission Factor Units** | **CAS#** |
| Aluminum | | 1.10E-01 | lb/lb PM10 | 7429905 |
| Ammonia | | 3.39E-04 | lb/lb PM10 | 7664417 |
| Antimony | | 1.00E-04 | lb/lb PM10 | 7440360 |
| Barium | | 9.97E-04 | lb/lb PM10 | 7440393 |
| Bromine | | 2.10E-05 | lb/lb PM10 | 7726956 |
| Chlorine | | 8.61E-04 | lb/lb PM10 | 7782505 |
| Chromium | | 5.60E-05 | lb/lb PM10 | 7440473 |
| Chromium, hexavalent (& compounds) | | 2.80E-06 | lb/lb PM10 | 18540299 |
| Copper | | 6.60E-05 | lb/lb PM10 | 7440508 |
| Lead | | 8.00E-06 | lb/lb PM10 | 7439921 |
| Manganese | | 6.62E-04 | lb/lb PM10 | 7439965 |
| Mercury | | 7.00E-06 | lb/lb PM10 | 7439976 |
| Nickel | | 1.70E-05 | lb/lb PM10 | 7440020 |
| Phosphorus | | 1.13E-03 | lb/lb PM10 | 7723140 |
| Selenium | | 2.00E-06 | lb/lb PM10 | 7782492 |
| SULFATES | | 2.18E-03 | lb/lb PM10 | 9960 |
| Thallium | | 1.30E-05 | lb/lb PM10 | 7440280 |
| Vanadium (fume or dust) | | 1.80E-05 | lb/lb PM10 | 7440622 |
| Zinc | | 5.60E-05 | lb/lb PM10 | 7440666 |

**Clay Dust and Brick Grinding**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **District Toxic Profile ID** | 227 | | | | |
| **Description** | Clay Dust and Brick Grinding | | | | |
| **Source** | The emission factors are derived from a 2009 speciation profile, "Brick Grinding and Screening - Composite" from EPA Speciate 4.4, test data from Emissions Inventory of PM2.5 Trace Elements across the United States, Environ. Sci. Technol., 43 (15), pp 5790–5796, 2009 | | | | |
|  | | | | | |
| **Pollutant Name** | | **Emission Factor** | **Emission Factor Units** | **CAS#** |
| Aluminum | | 2.33E-02 | lb/ lb PM | 7429905 |
| Antimony | | 7.70E-05 | lb/ lb PM | 7440360 |
| Arsenic | | 6.00E-06 | lb/ lb PM | 7440382 |
| Chromium | | 5.00E-06 | lb/ lb PM | 7440473 |
| Chromium, hexavalent (& compounds) | | 2.50E-07 | lb/ lb PM | 18540299 |
| Copper | | 5.30E-05 | lb/ lb PM | 7440508 |
| Lead | | 6.70E-05 | lb/ lb PM | 7439921 |
| Manganese | | 4.68E-04 | lb/ lb PM | 7439965 |
| Nickel | | 6.30E-05 | lb/ lb PM | 7440020 |
| Phosphorus | | 2.95E-04 | lb/ lb PM | 7723140 |
| Selenium | | 6.00E-06 | lb/ lb PM | 7782492 |
| Silver | | 6.80E-05 | lb/ lb PM | 7440224 |
| SULFATES | | 9.83E-03 | lb/ lb PM | 9960 |
| Zinc | | 2.43E-04 | lb/ lb PM | 7440666 |

**Coal Dust**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **District Toxic Profile ID** | 186 | | | | |
| **Description** | Coal Dust | | | | |
| **Source** | Emission factors are derived from the 1989 Coal Dust profile #2120410, "Fugitive dust from storage and handling" from EPA Speciate 4.0, test data from the 1982 NEA report, East Helena Source Apportionment Study to the State of Montana. | | | | |
|  | | | | | |
| **Pollutant Name** | | **Emission Factor** | **Emission Factor Units** | **CAS#** |
| Aluminum | | 6.46E-02 | lb/lb PM10 | 7429905 |
| Antimony | | 1.30E-04 | lb/lb PM10 | 7440360 |
| Barium | | 2.30E-04 | lb/lb PM10 | 7440393 |
| Cadmium | | 1.20E-04 | lb/lb PM10 | 7440439 |
| Chlorine | | 9.80E-04 | lb/lb PM10 | 7782505 |
| Chromium | | 4.00E-05 | lb/lb PM10 | 7440473 |
| Chromium, hexavalent (& compounds) | | 2.00E-06 | lb/lb PM10 | 18540299 |
| Cobalt | | 6.67E-03 | lb/lb PM10 | 7440484 |
| Copper | | 6.00E-05 | lb/lb PM10 | 7440508 |
| Lead | | 3.40E-04 | lb/lb PM10 | 7439921 |
| Manganese | | 4.00E-05 | lb/lb PM10 | 7439965 |
| Phosphorus | | 1.17E-03 | lb/lb PM10 | 7723140 |
| Zinc | | 1.00E-04 | lb/lb PM10 | 7440666 |

**Concrete Batch Plant - Cement silos**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **District Toxic Profile ID** | 85 | | | | |
| **Description** | Concrete Batch Plant - Cement silos | | | | |
| **Source** | The emission factors are from the table, "DEFAULT VALUES - TRACE METAL CONCENTRATIONS" in the 1998 San Diego Air Pollution Control District document, Concrete Batch Plant Operations | | | | |
|  | | | | | |
| **Pollutant Name** | | **Emission Factor** | **Emission Factor Units** | **CAS#** |
| Aluminum | | 1.60E-02 | lb/lb PM10 | 7429905 |
| Arsenic | | 2.20E-05 | lb/lb PM10 | 7440382 |
| Beryllium | | 1.00E-06 | lb/lb PM10 | 7440417 |
| Cadmium | | 1.00E-06 | lb/lb PM10 | 7440439 |
| Chromium | | 5.80E-05 | lb/lb PM10 | 7440473 |
| Chromium, hexavalent (& compounds) | | 5.00E-06 | lb/lb PM10 | 18540299 |
| Copper | | 3.00E-05 | lb/lb PM10 | 7440508 |
| Lead | | 1.20E-05 | lb/lb PM10 | 7439921 |
| Manganese | | 4.00E-04 | lb/lb PM10 | 7439965 |
| Nickel | | 2.50E-05 | lb/lb PM10 | 7440020 |
| Selenium | | 1.00E-06 | lb/lb PM10 | 7782492 |
| Zinc | | 9.20E-05 | lb/lb PM10 | 7440666 |

**Concrete Batch Plant - Fly Ash Silos**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **District Toxic Profile ID** | 86 | | | | |
| **Description** | Concrete Batch Plant - Fly Ash Silos | | | | |
| **Source** | The emission factors are from the table, "DEFAULT VALUES - TRACE METAL CONCENTRATIONS" in the 1998 San Diego Air Pollution Control District document, Concrete Batch Plant Operations | | | | |
|  | | | | | |
| **Pollutant Name** | | **Emission Factor** | **Emission Factor Units** | **CAS#** |
| Aluminum | | 1.75E-02 | lb/lb PM10 | 7429905 |
| Arsenic | | 1.50E-05 | lb/lb PM10 | 7440382 |
| Beryllium | | 2.00E-06 | lb/lb PM10 | 7440417 |
| Cadmium | | 1.00E-06 | lb/lb PM10 | 7440439 |
| Chromium | | 2.60E-05 | lb/lb PM10 | 7440473 |
| Chromium, hexavalent (& compounds) | | 3.00E-06 | lb/lb PM10 | 18540299 |
| Copper | | 2.30E-05 | lb/lb PM10 | 7440508 |
| Lead | | 1.50E-05 | lb/lb PM10 | 7439921 |
| Manganese | | 8.00E-05 | lb/lb PM10 | 7439965 |
| Nickel | | 1.20E-05 | lb/lb PM10 | 7440020 |
| Selenium | | 1.00E-06 | lb/lb PM10 | 7782492 |
| Zinc | | 3.00E-05 | lb/lb PM10 | 7440666 |

**Diatomite Processing - PM10**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **District Toxic Profile ID** | 72 | | | | |
| **Description** | Diatomite Processing - PM10 | | | | |
| **Source** | The emission factors are from table 11.22-1, "TRACE ELEMENT CONTENT OF FINISHED DIATOMITE" in November 1995 AP 42 Chapter 11 Mineral Products Industry, Section 22 Diatomite Processing. | | | | |
|  | | | | | |
| **Pollutant Name** | | **Emission Factor** | **Emission Factor Units** | **CAS#** |
| Antimony | | 2.00E-06 | lb/lb PM10 | 7440360 |
| Arsenic | | 5.00E-06 | lb/lb PM10 | 7440382 |
| Barium | | 3.00E-05 | lb/lb PM10 | 7440393 |
| Beryllium | | 1.00E-06 | lb/lb PM10 | 7440417 |
| Bromine | | 2.00E-05 | lb/lb PM10 | 7726956 |
| Cadmium | | 2.00E-06 | lb/lb PM10 | 7440439 |
| Chlorine | | 4.00E-04 | lb/lb PM10 | 7782505 |
| Chromium | | 1.00E-04 | lb/lb PM10 | 7440473 |
| Chromium, hexavalent (& compounds) | | 5.00E-06 | lb/lb PM10 | 18540299 |
| Cobalt | | 5.00E-06 | lb/lb PM10 | 7440484 |
| Copper | | 4.00E-05 | lb/lb PM10 | 7440508 |
| Lead | | 2.00E-06 | lb/lb PM10 | 7439921 |
| Manganese | | 6.00E-05 | lb/lb PM10 | 7439965 |
| Mercury | | 3.00E-07 | lb/lb PM10 | 7439976 |
| Molybdenum trioxide | | 5.00E-06 | lb/lb PM10 | 1313275 |
| Nickel | | 1.20E-04 | lb/lb PM10 | 7440020 |
| Selenium | | 1.00E-05 | lb/lb PM10 | 7782492 |
| Silver | | 5.00E-07 | lb/lb PM10 | 7440224 |
| Thallium | | 5.00E-07 | lb/lb PM10 | 7440280 |
| Vanadium (fume or dust) | | 2.00E-04 | lb/lb PM10 | 7440622 |
| Zinc | | 1.00E-05 | lb/lb PM10 | 7440666 |

**Petroleum Coke Dust PM10**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **District Toxic Profile ID** | 190 | | | | |
| **Description** | Petroleum Coke Dust PM10 | | | | |
| **Source** | Based on a study of petroleum coke dust emissions from open rail cars in northwest Washington and southwest British Columbia with EPA assistance (1994). See: http://www.epa.gov/osp/tribes/NatForum06/3\_2.pdf | | | | |
|  | | | | | |
| **Pollutant Name** | | **Emission Factor** | **Emission Factor Units** | **CAS#** |
| Arsenic | | 2.60E-06 | lb/lb PM10 | 7440382 |
| Barium | | 9.90E-07 | lb/lb PM10 | 7440393 |
| Cadmium | | 2.60E-06 | lb/lb PM10 | 7440439 |
| Chromium | | 3.90E-06 | lb/lb PM10 | 7440473 |
| Chromium, hexavalent (& compounds) | | 1.95E-07 | lb/lb PM10 | 18540299 |
| Cobalt | | 6.20E-07 | lb/lb PM10 | 7440484 |
| Lead | | 2.60E-06 | lb/lb PM10 | 7439921 |
| Mercury | | 2.60E-06 | lb/lb PM10 | 7439976 |
| Vanadium (fume or dust) | | 3.60E-05 | lb/lb PM10 | 7440622 |

**Petroleum Coke Dust VOC**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **District Toxic Profile ID** | 191 | | | | |
| **Description** | Petroleum Coke Dust VOC | | | | |
| **Source** | Based on a study of petroleum coke dust emissions from open rail cars in northwest Washington and southwest British Columbia with EPA assistance (1994). See: http://www.epa.gov/osp/tribes/NatForum06/3\_2.pdf | | | | |
|  | | | | | |
| **Pollutant Name** | | **Emission Factor** | **Emission Factor Units** | **CAS#** |
| 2-Methyl naphthalene | | 2.50E-06 | lb/lb VOC | 91576 |
| Anthracene | | 6.60E-07 | lb/lb VOC | 120127 |
| Benz[a]anthracene | | 2.20E-06 | lb/lb VOC | 56553 |
| Benzo[a]pyrene | | 2.20E-06 | lb/lb VOC | 50328 |
| Benzo[b]fluoranthene | | 1.10E-06 | lb/lb VOC | 205992 |
| Benzo[g,h,i]perylene | | 1.40E-06 | lb/lb VOC | 191242 |
| Chrysene | | 2.30E-06 | lb/lb VOC | 218019 |
| Dibenz[a,h]anthracene | | 9.90E-07 | lb/lb VOC | 53703 |
| Dibenzofuran | | 2.10E-07 | lb/lb VOC | 132649 |
| Fluorene | | 3.10E-07 | lb/lb VOC | 86737 |
| Indeno[1,2,3-cd]pyrene | | 5.60E-07 | lb/lb VOC | 193395 |
| Naphthalene | | 1.60E-06 | lb/lb VOC | 91203 |
| Pyrene | | 1.70E-06 | lb/lb VOC | 129000 |

***Miscellaneous***

**Paperboard Scrap**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **District Toxic Profile ID** | 76 | | | | |
| **Description** | Paperboard Scrap | | | | |
| **Source** | Average profile developed from original profiles representing the source category group 307xxxxx. Speciate 3.2 Jan. 05 1989 Shareef, G. S. Engineering Judgement, Radian Corporation. September 1987. | | | | |
|  | | | | | |
| **Pollutant Name** | | **Emission Factor** | **Emission Factor Units** | **CAS#** |
| Aluminum | | 7.80E-04 | lb/lb PM10 | 7429905 |
| Antimony | | 4.00E-05 | lb/lb PM10 | 7440360 |
| Arsenic | | 1.00E-05 | lb/lb PM10 | 7440382 |
| Barium | | 1.60E-04 | lb/lb PM10 | 7440393 |
| Bromine | | 1.00E-04 | lb/lb PM10 | 7726956 |
| Cadmium | | 3.00E-05 | lb/lb PM10 | 7440439 |
| Chromium | | 2.00E-05 | lb/lb PM10 | 7440473 |
| Chromium, hexavalent (& compounds) | | 1.00E-06 | lb/lb PM10 | 18540299 |
| Copper | | 3.00E-05 | lb/lb PM10 | 7440508 |
| Lead | | 4.00E-05 | lb/lb PM10 | 7439921 |
| Manganese | | 1.70E-04 | lb/lb PM10 | 7439965 |
| Nickel | | 7.00E-05 | lb/lb PM10 | 7440020 |
| Phosphorus | | 2.60E-04 | lb/lb PM10 | 7723140 |
| Selenium | | 1.00E-05 | lb/lb PM10 | 7782492 |
| Silver | | 6.00E-05 | lb/lb PM10 | 7440224 |
| SULFATES | | 1.98E-01 | lb/lb PM10 | 9960 |
| Vanadium (fume or dust) | | 9.00E-05 | lb/lb PM10 | 7440622 |
| Zinc | | 5.00E-05 | lb/lb PM10 | 7440666 |

**Z1 SU Asphalt Roofing Dipping and Storage PM**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **District Toxic Profile ID** | 65 | | | | |
| **Description** | Z1 SU Asphalt Roofing Dipping and Storage PM | | | | |
| **Source** | The emission factors were taken from CARB Speciation Profiles 341 | | | | |
|  | | | | | |
| **Pollutant Name** | | **Emission Factor** | **Emission Factor Units** | **CAS#** |
| Barium | | 5.00E-04 | lb/lb PM10 | 7440393 |
| Bromine | | 5.00E-04 | lb/lb PM10 | 7726956 |
| Cadmium | | 5.00E-04 | lb/lb PM10 | 7440439 |
| Chlorine | | 5.00E-04 | lb/lb PM10 | 7782505 |
| Cobalt | | 2.00E-02 | lb/lb PM10 | 7440484 |
| Copper | | 5.00E-04 | lb/lb PM10 | 7440508 |
| Lead | | 5.00E-04 | lb/lb PM10 | 7439921 |
| Manganese | | 5.50E-03 | lb/lb PM10 | 7439965 |
| Nickel | | 5.50E-03 | lb/lb PM10 | 7440020 |
| Selenium | | 5.50E-03 | lb/lb PM10 | 7782492 |
| Silver | | 5.00E-04 | lb/lb PM10 | 7440224 |
| SULFATES | | 2.26E-01 | lb/lb PM10 | 9960 |
| Zinc | | 5.50E-03 | lb/lb PM10 | 7440666 |

**Z1 SU Asphalt Roofing Dipping and Storage VOCs**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **District Toxic Profile ID** | 66 | | | | |
| **Description** | Z1 SU Asphalt Roofing Dipping and Storage VOCs | | | | |
| **Source** | The emission factors were taken from a worst case summation of CARB Speciation Profiles 21, 22, and 24 | | | | |
|  | | | | | |
| **Pollutant Name** | | **Emission Factor** | **Emission Factor Units** | **CAS#** |
| Benzene | | 8.00E-03 | lb/lb VOC | 71432 |
| Ethylene | | 2.00E-02 | lb/lb VOC | 74851 |
| Formaldehyde | | 2.50E-02 | lb/lb VOC | 50000 |
| Hexane | | 4.90E-02 | lb/lb VOC | 110543 |
| Propylene | | 2.00E-02 | lb/lb VOC | 115071 |
| Toluene | | 1.90E-02 | lb/lb VOC | 108883 |

**Z1 SU Asphalt Storage VOCs**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **District Toxic Profile ID** | 67 | | | | |
| **Description** | Z1 SU Asphalt Storage VOCs | | | | |
| **Source** | The emission factors were taken from a worst case summation of CARB Speciation Profiles 715, 716 | | | | |
|  | | | | | |
| **Pollutant Name** | | **Emission Factor** | **Emission Factor Units** | **CAS#** |
| Ethyl benzene | | 2.32E-02 | lb/lb VOC | 100414 |
| Naphthalene | | 6.53E-02 | lb/lb VOC | 91203 |
| o-Xylene | | 3.73E-02 | lb/lb VOC | 95476 |
| Toluene | | 6.45E-02 | lb/lb VOC | 108883 |
| Trimethylbenzenes | | 8.95E-02 | lb/lb VOC | 25551137 |
| Xylenes (mixed) | | 8.56E-02 | lb/lb VOC | 1330207 |

**Z1 SU Gasoline Dispensing Op VOC Liquid Speciation**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **District Toxic Profile ID** | 261 | | | | |
| **Description** | Z1 SU Gasoline Dispensing Op VOC Liquid Speciation | | | | |
| **Source** | The emission factors are derived from the table, "Content of Reformulated Gasoline", in the 1997 CAPCOA Air Toxics "Hot Spots" Program document, Gasoline Service Station Industrywide Risk Asessment Guidelines. | | | | |
|  | | | | | |
| **Pollutant Name** | | **Emission Factor** | **Emission Factor Units** | **CAS#** |
| Benzene | | 1.00E-02 | lb/lb VOC | 71432 |
| Ethyl benzene | | 1.60E-02 | lb/lb VOC | 100414 |
| Toluene | | 8.00E-02 | lb/lb VOC | 108883 |
| Xylenes (mixed) | | 2.40E-02 | lb/lb VOC | 1330207 |

**Z1 SU Gasoline Dispensing Op VOC Vapor Speciation**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **District Toxic Profile ID** | 128 | | | | |
| **Description** | Z1 SU Gasoline Dispensing Op VOC Vapor Speciation | | | | |
| **Source** | The emission factors are derived from the table, "Content of Reformulated Gasoline", in the 1997 CAPCOA Air Toxics "Hot Spots" Program document, Gasoline Service Station Industrywide Risk Asessment Guidelines. | | | | |
|  | | | | | |
| **Pollutant Name** | | **Emission Factor** | **Emission Factor Units** | **CAS#** |
| Benzene | | 3.00E-03 | lb/lb VOC | 71432 |
| Ethyl benzene | | 1.60E-02 | lb/lb VOC | 100414 |
| Toluene | | 8.00E-02 | lb/lb VOC | 108883 |
| Xylenes (mixed) | | 2.40E-02 | lb/lb VOC | 1330207 |

**Z1 SU Polystyrene Molding**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **District Toxic Profile ID** | 57 | | | | |
| **Description** | Z1 SU Polystyrene Molding | | | | |
| **Source** | District Legacy factor. Source Reference unknown. May have been submitted by molding facility and accepted in other evaluations. | | | | |
|  | | | | | |
| **Pollutant Name** | | **Emission Factor** | **Emission Factor Units** | **CAS#** |
| Benzene | | 1.00E-08 | lb/ton material | 71432 |
| Styrene | | 3.50E-07 | lb/ton material | 100425 |
| Toluene | | 9.76E-10 | lb/ton material | 108883 |

**Z1 SU Waste Wood/Resawing**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **District Toxic Profile ID** | 56 | | | | |
| **Description** | Z1 SU Waste Wood/Resawing | | | | |
| **Source** | \*Emission factors are derived from the PM 2.5 profile 91131, "Wood Products-Sawing-Composite" from EPA Speciate 4.3, test data from the 2009 article Emissions Inventory of PM2.5 Trace Elements across the United States in the journal, Environmental Science and Technology, 43 (15), pp 5790–5796). As a worst case the District assumes the PM 2.5 weight fractions are the same for PM 10. | | | | |
|  | | | | | |
| **Pollutant Name** | | **Emission Factor** | **Emission Factor Units** | **CAS#** |
| Aluminum | | 1.80E-03 | lb/lb PM10 | 7429905 |
| Barium | | 5.00E-04 | lb/lb PM10 | 7440393 |
| Bromine | | 5.50E-03 | lb/lb PM10 | 7726956 |
| Chlorine | | 3.00E-04 | lb/lb PM10 | 7782505 |
| Chromium | | 5.00E-04 | lb/lb PM10 | 7440473 |
| Chromium, hexavalent (& compounds) | | 2.50E-05 | lb/lb PM10 | 18540299 |
| Copper | | 5.00E-04 | lb/lb PM10 | 7440508 |
| Lead | | 5.00E-04 | lb/lb PM10 | 7439921 |
| Manganese | | 3.00E-04 | lb/lb PM10 | 7439965 |
| Nickel | | 5.00E-04 | lb/lb PM10 | 7440020 |
| SULFATES | | 5.50E-03 | lb/lb PM10 | 9960 |
| Zinc | | 5.00E-04 | lb/lb PM10 | 7440666 |

***Oilfield***

**Diesel Storage Tanks**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **District Toxic Profile ID** | 23 | | | | |
| **Description** | Diesel Storage Tanks | | | | |
| **Source** | The emission factors are from the 1993 District memo "Diesel Storage Weight Fractions." | | | | |
|  | | | | | |
| **Pollutant Name** | | **Emission Factor** | **Emission Factor Units** | **CAS#** |
| Benzene | | 8.80E-04 | lb/lb VOC | 71432 |
| Toluene | | 4.82E-03 | lb/lb VOC | 108883 |
| Xylenes (mixed) | | 4.20E-03 | lb/lb VOC | 1330207 |

**Gasoline Storage Tanks**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **District Toxic Profile ID** | 24 | | | | |
| **Description** | Gasoline Storage Tanks | | | | |
| **Source** | The emission factors are from the 1995 District memo "Toxic Emissions Inventory Plan Regarding Diesel and Gasoline Storage Weight Fractions" | | | | |
|  | | | | | |
| **Pollutant Name** | | **Emission Factor** | **Emission Factor Units** | **CAS#** |
| Benzene | | 7.00E-03 | lb/lb VOC | 71432 |
| Toluene | | 1.00E-02 | lb/lb VOC | 108883 |
| Xylenes (mixed) | | 1.00E-02 | lb/lb VOC | 1330207 |

**Glycol Reboiler EG Uncontrolled**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **District Toxic Profile ID** | 232 | | | | |
| **Description** | Glycol Reboiler EG Uncontrolled | | | | |
| **Source** | Emission factors are from table 19, "Point Source Emission Factors" (Reboiler, Ethylene Glycol row, Mean value, page 171-172, pdf) in CARB's 1999 Volume 1 Part 2, Development Of Toxics Emission Factors From Source Test Data Collected Under The Air Toxics Hot Spots Program. | | | | |
|  | | | | | |
| **Pollutant Name** | | **Emission Factor** | **Emission Factor Units** | **CAS#** |
| Benzene | | 2.45E-01 | lb/MMscf | 71432 |
| Ethyl benzene | | 7.29E-03 | lb/MMscf | 100414 |
| Formaldehyde | | 3.79E-05 | lb/MMscf | 50000 |
| Hydrogen sulfide | | 5.49E-02 | lb/MMscf | 7783064 |
| Toluene | | 1.64E-01 | lb/MMscf | 108883 |
| Xylenes (mixed) | | 2.92E-02 | lb/MMscf | 1330207 |

**Glycol Reboiler TEG Uncontrolled**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **District Toxic Profile ID** | 233 | | | | |
| **Description** | Glycol Reboiler TEG Uncontrolled | | | | |
| **Source** | Emission factors are from table 19, "Point Source Emission Factors" (Reboiler, Triethylene Glycol row, Mean value, page 172) in CARB's 1999 Volume 1 Part 2, Development Of Toxics Emission Factors From Source Test Data Collected Under The Air Toxics Hot Spots Program. | | | | |
|  | | | | | |
| **Pollutant Name** | | **Emission Factor** | **Emission Factor Units** | **CAS#** |
| Benzene | | 1.51E-01 | lb/MMscf | 71432 |
| Ethyl benzene | | 2.69E-02 | lb/MMscf | 100414 |
| Formaldehyde | | 3.50E-05 | lb/MMscf | 50000 |
| Hydrogen sulfide | | 4.42E-03 | lb/MMscf | 7783064 |
| Toluene | | 1.75E-01 | lb/MMscf | 108883 |
| Xylenes (mixed) | | 7.38E-02 | lb/MMscf | 1330207 |

**NG Heater Treater WSPA 1992**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **District Toxic Profile ID** | 238 | | | | |
| **Description** | NG Heater Treater WSPA 1992 | | | | |
| **Source** | Emission factors are from the 1992 Radian Corporation report, Source Test Report for The Texaco Heater Treater, The Mobil Steam Generator, and The Swepi Gas Turbine In the San Joaquin Valley Unified Air Pollution Control District, California prepared for WSPA | | | | |
|  | | | | | |
| **Pollutant Name** | | **Emission Factor** | **Emission Factor Units** | **CAS#** |
| Acenaphthene | | 1.20E-06 | lb/MMscf | 83329 |
| Acenaphthylene | | 1.20E-05 | lb/MMscf | 208968 |
| Acetaldehyde | | 2.60E-02 | lb/MMscf | 75070 |
| Acrolein | | 1.11E-02 | lb/MMscf | 107028 |
| Anthracene | | 1.40E-06 | lb/MMscf | 120127 |
| Benz[a]anthracene | | 1.00E-06 | lb/MMscf | 56553 |
| Benzene | | 1.70E-03 | lb/MMscf | 71432 |
| Benzo[a]pyrene | | 5.60E-07 | lb/MMscf | 50328 |
| Benzo[b]fluoranthene | | 5.60E-07 | lb/MMscf | 205992 |
| Benzo[g,h,i]perylene | | 8.70E-07 | lb/MMscf | 191242 |
| Benzo[k]fluoranthene | | 5.60E-07 | lb/MMscf | 207089 |
| Chrysene | | 1.00E-06 | lb/MMscf | 218019 |
| Dibenz[a,h]anthracene | | 5.60E-07 | lb/MMscf | 53703 |
| Ethyl benzene | | 1.10E-03 | lb/MMscf | 100414 |
| Fluoranthene | | 1.20E-05 | lb/MMscf | 206440 |
| Fluorene | | 4.60E-06 | lb/MMscf | 86737 |
| Formaldehyde | | 3.80E-02 | lb/MMscf | 50000 |
| Indeno[1,2,3-cd]pyrene | | 5.60E-07 | lb/MMscf | 193395 |
| Naphthalene | | 2.37E-04 | lb/MMscf | 91203 |
| PAHs, total, minus Naphthalene | | 7.60E-05 | lb/MMscf | 1151 |
| Phenanthrene | | 3.40E-05 | lb/MMscf | 85018 |
| Propylene | | 4.60E-01 | lb/MMscf | 115071 |
| Pyrene | | 5.60E-06 | lb/MMscf | 129000 |
| Toluene | | 3.20E-02 | lb/MMscf | 108883 |
| Xylenes (mixed) | | 1.90E-02 | lb/MMscf | 1330207 |

**NG Steam Generators WSPA 1992**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **District Toxic Profile ID** | 237 | | | | |
| **Description** | NG Steam Generators WSPA 1992 | | | | |
| **Source** | Emission factors are from the 1992 Radian Corporation report, Source Test Report for The Texaco Heater Treater, The Mobil Steam Generator, and The Swepi Gas Turbine In the San Joaquin Valley Unified Air Pollution Control District, California prepared for WSPA | | | | |
|  | | | | | |
| **Pollutant Name** | | **Emission Factor** | **Emission Factor Units** | **CAS#** |
| Acenaphthene | | 5.40E-07 | lb/MMscf | 83329 |
| Acenaphthylene | | 3.70E-07 | lb/MMscf | 208968 |
| Acetaldehyde | | 1.40E-02 | lb/MMscf | 75070 |
| Acrolein | | 1.40E-02 | lb/MMscf | 107028 |
| Anthracene | | 2.40E-06 | lb/MMscf | 120127 |
| Benz[a]anthracene | | 1.30E-06 | lb/MMscf | 56553 |
| Benzene | | 1.60E-03 | lb/MMscf | 71432 |
| Benzo[a]pyrene | | 3.70E-07 | lb/MMscf | 50328 |
| Benzo[b]fluoranthene | | 3.70E-07 | lb/MMscf | 205992 |
| Benzo[g,h,i]perylene | | 3.70E-07 | lb/MMscf | 191242 |
| Benzo[k]fluoranthene | | 3.70E-07 | lb/MMscf | 207089 |
| Chrysene | | 1.13E-06 | lb/MMscf | 218019 |
| Dibenz[a,h]anthracene | | 3.70E-07 | lb/MMscf | 53703 |
| Ethyl benzene | | 1.20E-02 | lb/MMscf | 100414 |
| Fluoranthene | | 1.40E-06 | lb/MMscf | 206440 |
| Fluorene | | 2.40E-06 | lb/MMscf | 86737 |
| Formaldehyde | | 3.30E-02 | lb/MMscf | 50000 |
| Hydrogen sulfide | | 1.70E-01 | lb/MMscf | 7783064 |
| Indeno[1,2,3-cd]pyrene | | 3.70E-07 | lb/MMscf | 193395 |
| Naphthalene | | 1.87E-04 | lb/MMscf | 91203 |
| PAHs, total, w/o individ. components reported | | 2.70E-05 | lb/MMscf | 1151 |
| PAHs, total, with individ. components also reported | | 2.10E-04 | lb/MMscf | 1150 |
| Phenanthrene | | 1.20E-05 | lb/MMscf | 85018 |
| Propylene | | 6.00E-01 | lb/MMscf | 115071 |
| Pyrene | | 2.00E-06 | lb/MMscf | 129000 |
| Toluene | | 2.00E-02 | lb/MMscf | 108883 |
| Xylenes (mixed) | | 2.50E-02 | lb/MMscf | 1330207 |

**Oilfield Equipment Fugitive - District**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **District Toxic Profile ID** | 204 | | | | |
| **Description** | Oilfield Equipment Fugitive - District | | | | |
| **Source** | District Approved Toxic EF for Fugitive emissions. District Policy based on Actual ST in the valley. | | | | |
|  | | | | | |
| **Pollutant Name** | | **Emission Factor** | **Emission Factor Units** | **CAS#** |
| Benzene | | 3.50E-03 | lbs/lb VOC | 71432 |
| Hydrogen sulfide | | 1.43E-02 | lbs/lb VOC | 7783064 |
| Toluene | | 3.40E-03 | lbs/lb VOC | 108883 |
| Xylenes (mixed) | | 7.00E-03 | lbs/lb VOC | 1330207 |

**Z2 EI Glycol Reboiler District**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **District Toxic Profile ID** | 260 | | | | |
| **Description** | Z2 EI Glycol Reboiler District | | | | |
| **Source** | Emission Factors are derived from the 1995 Tech Services Glycol Reboiler Emission Factor memo. Test data from 1992 ARCO Glycol Reboiler source tests. | | | | |
|  | | | | | |
| **Pollutant Name** | | **Emission Factor** | **Emission Factor Units** | **CAS#** |
| Benzene | | 1.08E-01 | lbs/MMscf | 71432 |
| Ethyl benzene | | 7.21E-02 | lbs/MMscf | 100414 |
| Hydrogen sulfide | | 6.31E-03 | lbs/MMscf | 7783064 |
| Toluene | | 2.98E-02 | lbs/MMscf | 108883 |
| Xylenes (mixed) | | 1.05E-03 | lbs/MMscf | 1330207 |

**Z2 EI Natural Gas Turbines WSPA 1992**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **District Toxic Profile ID** | 255 | | | | |
| **Description** | Z2 EI Natural Gas Turbines WSPA 1992 | | | | |
| **Source** | The emission factors were derived from data in the 1992 Radian Corporation report to WSPA. Data was based on source tests in the San Joaquin Valley. | | | | |
|  | | | | | |
| **Pollutant Name** | | **Emission Factor** | **Emission Factor Units** | **CAS#** |
| Acenaphthene | | 5.00E-06 | lbs/MMscf | 83329 |
| Acenaphthylene | | 1.90E-06 | lbs/MMscf | 208968 |
| Acetaldehyde | | 3.90E-02 | lbs/MMscf | 75070 |
| Acrolein | | 3.90E-02 | lbs/MMscf | 107028 |
| Anthracene | | 1.60E-05 | lbs/MMscf | 120127 |
| Benz[a]anthracene | | 2.90E-06 | lbs/MMscf | 56553 |
| Benzene | | 3.50E-03 | lbs/MMscf | 71432 |
| Benzo[a]pyrene | | 1.50E-06 | lbs/MMscf | 50328 |
| Benzo[b]fluoranthene | | 1.50E-06 | lbs/MMscf | 205992 |
| Benzo[g,h,i]perylene | | 1.50E-06 | lbs/MMscf | 191242 |
| Benzo[k]fluoranthene | | 1.50E-06 | lbs/MMscf | 207089 |
| Chrysene | | 3.70E-06 | lbs/MMscf | 218019 |
| Dibenz[a,h]anthracene | | 1.50E-06 | lbs/MMscf | 53703 |
| Ethyl benzene | | 4.80E-03 | lbs/MMscf | 100414 |
| Fluoranthene | | 1.00E-05 | lbs/MMscf | 206440 |
| Fluorene | | 1.90E-05 | lbs/MMscf | 86737 |
| Formaldehyde | | 1.30E-01 | lbs/MMscf | 50000 |
| Indeno[1,2,3-cd]pyrene | | 1.50E-06 | lbs/MMscf | 193395 |
| Naphthalene | | 5.82E-04 | lbs/MMscf | 91203 |
| PAHs, total, w/o individ. components reported | | 1.70E-04 | lbs/MMscf | 1151 |
| Phenanthrene | | 9.20E-05 | lbs/MMscf | 85018 |
| Propylene | | 1.60E+00 | lbs/MMscf | 115071 |
| Pyrene | | 1.20E-05 | lbs/MMscf | 129000 |
| Toluene | | 1.70E-02 | lbs/MMscf | 108883 |
| Xylenes (mixed) | | 2.80E-02 | lbs/MMscf | 1330207 |

**Z2 EI FWKO Stock Tank VOC**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **District Toxic Profile ID** | 259 | | | | |
| **Description** | Z2 EI FWKO Stock Tank VOC | | | | |
| **Source** | The emission factors are from the 1990 Texaco, Kern County TEIR. AB2588 Purposes only. | | | | |
|  | | | | | |
| **Pollutant Name** | | **Emission Factor** | **Emission Factor Units** | **CAS#** |
| Ammonia | | 9.04E-05 | lb/lb VOC | 7664417 |
| Benzene | | 2.06E-04 | lb/lb VOC | 71432 |
| Chlorobenzene | | 2.84E-03 | lb/lb VOC | 108907 |
| Dichlorobenzenes (mixed isomers) | | 3.48E-04 | lb/lb VOC | 25321226 |
| Hydrogen sulfide | | 1.29E+00 | lb/lb VOC | 7783064 |
| Methanol | | 1.69E-04 | lb/lb VOC | 67561 |
| Naphthalene | | 6.75E-05 | lb/lb VOC | 91203 |
| Toluene | | 2.42E-07 | lb/lb VOC | 108883 |
| Xylenes (mixed) | | 3.35E-03 | lb/lb VOC | 1330207 |

**Z2 EI WEMCO Unit VOC**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **District Toxic Profile ID** | 258 | | | | |
| **Description** | Z2 EI WEMCO Unit VOC | | | | |
| **Source** | The emission factors are from the 1990 Texaco, Kern County TEIR. AB2588 Purposes only. | | | | |
|  | | | | | |
| **Pollutant Name** | | **Emission Factor** | **Emission Factor Units** | **CAS#** |
| Acetaldehyde | | 4.07E-04 | lb/lb VOC | 75070 |
| Acrolein | | 4.85E-05 | lb/lb VOC | 107028 |
| Ammonia | | 5.89E-02 | lb/lb VOC | 7664417 |
| Benzene | | 1.28E-01 | lb/lb VOC | 71432 |
| Chlorobenzene | | 5.84E-02 | lb/lb VOC | 108907 |
| Dichlorobenzenes (mixed isomers) | | 3.18E-02 | lb/lb VOC | 25321226 |
| Formaldehyde | | 8.18E-04 | lb/lb VOC | 50000 |
| Glutaraldehyde | | 7.44E-04 | lb/lb VOC | 111308 |
| Hydrogen sulfide | | 1.39E+02 | lb/lb VOC | 7783064 |
| Methanol | | 1.38E-01 | lb/lb VOC | 67561 |
| Naphthalene | | 5.54E-02 | lb/lb VOC | 91203 |
| Toluene | | 1.35E-01 | lb/lb VOC | 108883 |
| Xylenes (mixed) | | 1.17E-01 | lb/lb VOC | 1330207 |

***Source Testing***

One of the requirements of an AB 2588 Hot Spots Toxics Emissions Inventory Plan (TEIP) is to include identification and quantification methods of listed toxic substances being emitted.[1](#Footnote1)

Source testing may be required for certain sources, which are identified in Appendix D of CARB’s *Emission Inventory Criteria and Guidelines Report (EIC&GR)*. Options to fulfill this requirement include:[2](#Footnote4)

* 1. Complete source testing in accordance with ARB-adopted source test methods
  2. Propose sampling and analysis methods that are substantially equivalent to ARB-adopted source test methods
  3. Use existing source test data from the facility if 1) all conditions affecting emissions of listed substances are substantially the same, and 2) existing source test methods are equivalent to ARB-adopted test methods
  4. Complete pooled source testing
     1. A group of related facilities may perform representative source tests to apply to their respective facilities
     2. Utilize only if there is sufficient similarity in all emissions parameters between the facility tested and the facility applied to
  5. Propose an alternative method to quantify emissions that provides the best technologically feasible characterization
     1. Must result in a characterization that is as accurate as that achieved by the ARB-adopted source test method
     2. Utilize this alternative if physical circumstances at the facility do not allow for the ARB-adopted source test method
  6. Utilize ARB-approved emission factors from the California Air Toxics Emission Factors (CATEF) database, (subject to additional conditions)

1 Section VI of the [*EIC&GR*](http://www.arb.ca.gov/ab2588/2588guid.htm)*: Requirements for Preparing Emission Inventory Plans*

2 Refer to Section IX and Appendix D of the [*EIC&GR*](http://www.arb.ca.gov/ab2588/2588guid.htm) for more details regarding source testing. The methods used to conduct source tests must be approved in advance by the District.

***Quantification Methods***

When source testing is not required, emissions can be calculated using the best method to account for conditions of the emitting process.[3](#Footnote2) Some quantification methods include:

1. Emission factors. Emission factors are ratios that relate emissions of a pollutant to an activity level at a facility that can be easily measured, such as an amount of material processed, or an amount of fuel used. Given an emission factor and a known activity level, a simple multiplication yields an estimate of the emissions.[4](#Footnote2)
2. Mass balance. Mass balanceis a method for estimating emissions that attempts to account for all the inputs and outputs of a given pollutant. If inputs of a material to a given process are known and all outputs except for air emissions can be reasonably well quantified, then the remainder can be assumed to be an estimate of the amount lost to the atmosphere for the process.
3. Engineering estimate. Engineering estimate is a term commonly applied to the best approximation that can be made when the specific emission estimation techniques such as source testing, use of emission factors, or mass balance are not possible. This estimation is based on principles of chemistry, physics, and available source specific information.
4. Speciation profiles. Speciation profiles are listings of the proportional chemical composition of Total Organic Gas (TOG) or Particulate Matter (PM) from a device or process. Note, one of the above techniques will be needed to first estimate emissions of TOG or PM.

3 Refer to Section VIII.E and Appendix A-I of the [*EIC&GR*](http://www.arb.ca.gov/ab2588/2588guid.htm) for more information regarding Applicable Degree of Accuracy requirements for emission quantification.

4 [District](http://www.valleyair.org/busind/pto/toxics.htm) "Hot Spots" Emission Factors & Speciation Profiles; California Air Toxics Emission Factors ([CATEF](https://www.arb.ca.gov/ei/catef/catef.htm)) database; [EPA AP-42](https://www.epa.gov/air-emissions-factors-and-quantification/ap-42-compilation-air-emission-factors)