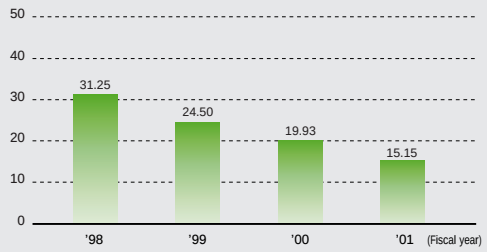
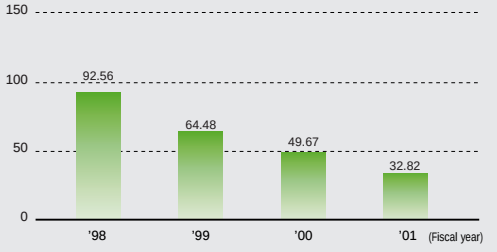
# Chemical Substances Emission Results

**Changes in Chemical Substances Emission Volume:** We are reducing our use of chemical substances through ongoing efforts in such areas as usage volume reduction, adoption of substitutes, review of our production processes and conversion of our manufacturing facilities.

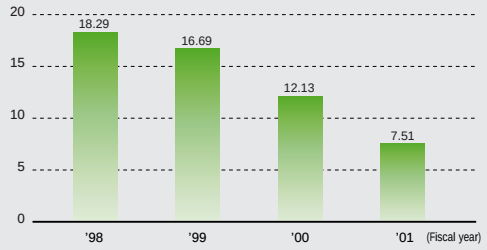
**Xylene Emissions (Fujitsu Group)** (Unit: tons)



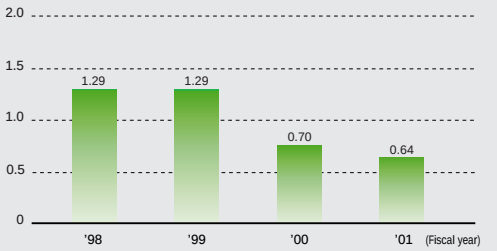

**Toluene Emissions (Fujitsu Group)** (Unit: tons)




**Xylene Emissions (Fujitsu)** (Unit: tons)




**Toluene Emissions (Fujitsu)** (Unit: tons)




# PRTR Transfer/Emission Results

**Changes in PRTR Transfer/Emission Volumes:** We are complying with the PRTR Law by conducting appropriate management of chemical substances, from purchase to disposal, and calculating the transferral/disposal of chemical substances.

**Fujitsu** (Unit: kg)

| Name of Class I designated chemicals | Number of Class I designated chemicals | Use/ processing volume | Emission volume | | | | Transferred volume | | Volume recycled/ removed/ consumed |
|---|---|---|---|---|---|---|---|---|---|
| | | | Emission into air | Emission into public area water | Emission into soil at site (except landfill) | Landfill at site | Transfer into sewerage | Transfer off-site (except into sewerage | |
| 2-aminoethanol | 16 | 372505.0 | 465.0 | 0.0 | 0.0 | 0.0 | 0.0 | 253534.0 | 118506.0 |
| Asbestos | 26 | 5149.0 | 674.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 4475.0 |
| 4,4'-Polymer of 4,4'-isopropylidenediphenol and 1-chloro-2,3-epoxypropane (or bisphenol A type epoxy resin) | 30 | 415.5 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.5 | 415.0 |
| Ethylene glycol | 43 | 1297.3 | 58.0 | 0.0 | 0.0 | 0.0 | 0.0 | 1216.3 | 23.0 |
| Ethylene glycol monoethyl ether | 44 | 745.4 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 745.4 | 0.0 |
| Ethylene glycol monomethyl ether | 45 | 684.5 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 684.5 | 0.0 |
| Ethylenediamine | 46 | 126.0 | 13.0 | 0.0 | 0.0 | 0.0 | 0.0 | 110.0 | 3.0 |
| Xylene | 63 | 45764.3 | 7498.3 | 0.0 | 0.0 | 0.0 | 0.0 | 25887.4 | 12378.7 |
| Silver and its water-soluble compounds | 64 | 2.9 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 2.9 | 0.0 |
| 2-ethoxyethyl acetate (or ethylene glycol monoethyl ether acetate) | 101 | 1262.9 | 239.0 | 0.0 | 0.0 | 0.0 | 0.0 | 804.9 | 219.0 |
| Inorganic cyanide compounds (except complex salts and cyanates) | 108 | 5189.0 | 0.0 | 32.0 | 0.0 | 0.0 | 0.0 | 5157.0 | 0.0 |
| Copper salts (water-soluble, except complex salts) | 207 | 462662.0 | 0.0 | 850.1 | 0.0 | 0.0 | 14.7 | 123569.7 | 338227.5 |
| 1,3,5-trimethylbenzene | 224 | 23.9 | 1.0 | 0.0 | 0.0 | 0.0 | 0.0 | 22.1 | 0.8 |
| Toluene | 227 | 693.6 | 212.4 | 0.0 | 0.0 | 0.0 | 0.0 | 478.4 | 2.8 |
| Lead and its compounds | 230 | 12392.1 | 0.0 | 21.0 | 0.0 | 0.0 | 0.0 | 858.4 | 11512.7 |
| Nickel | 231 | 2111.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 9.3 | 2101.7 |
| Nickel compounds | 232 | 5988.0 | 0.0 | 310.0 | 0.0 | 0.0 | 0.0 | 290.0 | 5388.0 |
| Arsenic and its inorganic compounds | 252 | 607.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 607.0 |
| Hydrazine | 253 | 19804.0 | 0.0 | 0.1 | 0.0 | 0.0 | 0.0 | 880.0 | 18923.9 |
| Hydroquinone | 254 | 387.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 30.0 | 357.0 |
| Piperazine | 258 | 150.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 150.0 | 0.0 |
| Phenol | 266 | 441.6 | 88.2 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 353.4 |
| Hydrogen fluoride and its water-soluble salts | 283 | 169468.2 | 490.9 | 22594.2 | 0.0 | 0.0 | 652.3 | 122464.7 | 23266.0 0 |
| Boron and its compounds | 304 | 4331.0 | 0.0 | 88.8 | 0.0 | 0.0 | 0.0 | 4240.0 | 2.2 |
| Poly(oxyethylene) nonylphenyl ether | 309 | 8.3 | 0.3 | 0.0 | 0.0 | 0.0 | 0.0 | 8.0 | 0.0 |
| Formaldehyde | 310 | 157264.4 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 588.0 | 156676.4 |
| Manganese and its compounds | 311 | 16074.1 | 0.0 | 48.2 | 0.0 | 0.0 | 0.0 | 15807.9 | 218.0 |
| 317) 2-(diethylamino)ethyl methacrylate | 317 | 131.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 131.0 |
| Molybdenum and its compounds | 346 | 6.6 | 0.1 | 0.0 | 0.0 | 0.0 | 0.0 | 6.0 | 0.5 |
| **Total** | | 1285685.7 | 9740.2 | 23944.4 | 0.0 | 0.0 | 667.0 | 557545.5 | 693788.6 |

## Fujitsu Group

(Unit: kg)

| Name of Class I designated chemicals | Number of Class I designated chemicals | Use/ processing volume | Emission volume | | | | Transferred volume | | Volume recycled/ removed/ consumed |
|---|---|---|---|---|---|---|---|---|---|
| | | | Emission into air | Emission into public area water | Emission into soil at site (except landfill) | Landfill at site | Transfer into sewerage | Transfer off-site (except into sewerage | |
| Zinc compounds (water-soluble) | 1 | 7104.6 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 207.8 | 6896.8 |
| 2-aminoethanol | 16 | 417961.3 | 474.0 | 1256.7 | 0.0 | 0.0 | 0.0 | 293543.3 | 122687.3 |
| n-alkylbenzenesulfonic acid and its salts (alkyl C=10-14) | 24 | 200.0 | 200.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Antimony and its compounds | 25 | 1867.5 | 0.0 | 0.0 | 0.0 | 0.0 | 0.6 | 808.0 | 1058.9 |
| Asbestos | 26 | 5149.0 | 674.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 4475.0 |
| 4,4'-Polymer of 4,4'-isopropylidenediphenol and 1-chloro-2,3-epoxypropane (or bisphenol A type epoxy resin) | 30 | 9375.1 | 227.5 | 0.0 | 0.0 | 0.0 | 0.0 | 18.5 | 9129.1 |
| Ethylbenzene | 40 | 301.0 | 298.0 | 0.0 | 0.0 | 0.0 | 0.0 | 3.0 | 0.0 |
| Ethylene glycol | 43 | 17930.3 | 69.7 | 404.4 | 0.0 | 0.0 | 0.0 | 9678.4 | 7777.7 |
| Ethylene glycol monoethyl ether | 44 | 14972.2 | 1507.8 | 1600.0 | 0.0 | 0.0 | 0.0 | 10595.4 | 1269.0 |
| Ethylene glycol monomethyl ether | 45 | 2661.3 | 413.5 | 82.0 | 0.0 | 0.0 | 0.0 | 859.5 | 1306.3 |
| Ethylenediamine | 46 | 126.0 | 13.0 | 0.0 | 0.0 | 0.0 | 0.0 | 110.0 | 3.0 |
| Xylene | 63 | 317961.8 | 13456.4 | 0.0 | 0.0 | 0.0 | 0.0 | 40830.4 | 263675.1 |
| Silver and its water-soluble compounds | 64 | 1381.1 | 0.0 | 6.5 | 0.0 | 0.0 | 2.0 | 20.9 | 1351.7 |
| Chromium and chromium (III) compounds | 68 | 2315.4 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 909.6 | 1405.8 |
| Chlorodifluoromethane (or HCFC-22) | 85 | 230000.0 | 2300.0 | 0.0 | 0.0 | 0.0 | 0.0 | 227.7 | 227472.3 |
| Cobalt and its compounds | 100 | 3228.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 31.0 | 3197.0 |
| 2-ethoxyethyl acetate (or ethylene glycol monoethyl ether acetate) | 101 | 2750.7 | 246.4 | 0.0 | 0.0 | 0.0 | 0.0 | 969.9 | 1534.4 |
| Inorganic cyanide compounds (except complex salts and cyanates) | 108 | 50507.0 | 1674.0 | 80.5 | 0.0 | 0.0 | 0.0 | 5647.0 | 43105.5 |
| Cyclohexylamine | 114 | 270.0 | 110.0 | 0.0 | 0.0 | 0.0 | 160.0 | 0.0 | 0.0 |
| 2,2-dichloro-1,1,1-trifluoroethane (or HCFC-123) | 124 | 540.0 | 540.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| o-dichlorobenzene | 139 | 17000.0 | 4300.0 | 0.0 | 0.0 | 0.0 | 0.0 | 12700.0 | 0.0 |
| Dichloropentafluoropropane (or HCFC-225) | 144 | 4782.0 | 2651.0 | 0.0 | 0.0 | 0.0 | 0.0 | 1746.0 | 385.0 |
| N,N-dimethylformamide | 172 | 25.9 | 25.9 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Styrene | 177 | 9580.0 | 8622.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 958.0 |
| Thiourea | 181 | 2205.4 | 0.0 | 0.0 | 0.0 | 0.0 | 31.0 | 0.0 | 2174.4 |
| Copper salts (water-soluble, except complex salts) | 207 | 1047642.9 | 14.7 | 1225.9 | 0.0 | 0.0 | 14.7 | 131033.9 | 915353.8 |
| 1,3,5-trimethylbenzene | 224 | 23.9 | 1.0 | 0.0 | 0.0 | 0.0 | 0.0 | 22.1 | 0.8 |
| Toluene | 227 | 35390.5 | 24410.6 | 0.8 | 0.0 | 0.0 | 0.0 | 3260.1 | 7719.0 |
| Lead and its compounds | 230 | 142688.6 | 0.0 | 30.2 | 0.0 | 0.0 | 0.3 | 67026.5 | 75631.7 |
| Nickel | 231 | 30726.0 | 0.0 | 9.1 | 0.0 | 0.0 | 0.0 | 589.3 | 30127.6 |
| Nickel compounds | 232 | 43460.6 | 151.6 | 516.0 | 0.0 | 0.0 | 49.0 | 1258.0 | 41486.0 |
| Nonylphenol | 242 | 420.0 | 15.0 | 0.0 | 0.0 | 0.0 | 0.0 | 400.0 | 5.0 |
| Arsenic and its inorganic compounds | 252 | 807.0 | 0.0 | 0.0 | 0.0 | 0.0 | 13.0 | 75.0 | 719.0 |
| Hydrazine | 253 | 21293.0 | 98.0 | 3.9 | 0.0 | 0.0 | 150.0 | 880.0 | 20161.2 |
| Hydroquinone | 254 | 517.0 | 6.0 | 0.0 | 0.0 | 0.0 | 0.0 | 154.0 | 357.0 |
| Piperazine | 258 | 150.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 150.0 | 0.0 |
| Phenol | 266 | 8699.4 | 2088.2 | 0.0 | 0.0 | 0.0 | 0.7 | 6100.0 | 510.4 |
| Di-n-butyl phthalate | 270 | 5192.0 | 350.1 | 0.0 | 0.0 | 0.0 | 0.0 | 870.0 | 3971.9 |
| Hydrogen fluoride and its water-soluble salts | 283 | 216323.0 | 1007.4 | 24638.2 | 0.0 | 0.0 | 1263.3 | 161444.7 | 27969.3 |
| Boron and its compounds | 304 | 20631.0 | 11.7 | 3848.6 | 0.0 | 0.0 | 0.0 | 10506.8 | 6263.9 |
| Poly(oxyethylene) alkyl ether (alkyl C=12-15) | 307 | 248.0 | 0.0 | 48.0 | 0.0 | 0.0 | 0.0 | 200.0 | 0.0 |
| Poly(oxyethylene) nonylphenyl ether | 309 | 8.3 | 0.9 | 0.0 | 0.0 | 0.0 | 0.0 | 8.0 | 0.0 |
| Formaldehyde | 310 | 192602.6 | 304.6 | 121.3 | 0.0 | 0.0 | 0.0 | 951.0 | 191225.6 |
| Manganese and its compounds | 311 | 3006264.6 | 11.7 | 56.3 | 0.0 | 0.0 | 0.0 | 77159.8 | 2929036.9 |
| Methacrylic acid | 314 | 4.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.4 | 3.6 |
| 2-(diethylamino)ethyl methacrylate | 317 | 131.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 131.0 |
| Methyl-1,3-phenylene diisocyanate (or m-tolylene diisocyanate) | 338 | 146032.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 146032.0 |
| Molybdenum and its compounds | 346 | 233.4 | 0.1 | 226.8 | 0.0 | 0.0 | 0.0 | 6.0 | 0.5 |
| **Total** | | 6039684.5 | 66274.3 | 34155.2 | 0.0 | 0.0 | 1684.6 | 840959.1 | 5096611.4 |

## Effects on the Ecology and Standards for Emissions by Plants of the Main PRTR-targeted Substances Used by the Fujitsu Group

| Substance name/ Classification | PRTR substance number | Status when in use | Ministry of the Environment Ecological Toxicity [Unit: mg/l] *2 | | | | | | | | Standard air pollution value (Standard for plant emissions) | | Standard water pollution value (Standard for discharge from plant) | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Algae | | Water fleas | | | Fish | | | Standard value under Law on Air Pollution Prevention | Fujitsu internal management value (reference-standard) | Standard value under Law on Water Pollution Prevention | Fujitsu internal management standard value (reference) |
| | | | Growth prevention | | Acute swimming prevention | Breeding prevention | | Acute toxicity | Extended toxicity | | | | | |
| | | | 72hr～ EC50 | 72hr～ NOEC | 48hr～ EC50 | 21day～ EC50 | 21day～ NOEC | 96hr～ LC50 | 14day～ LC50 | 14day～ LC50 | | | | |
| Manganese and its compounds | 311 | Liquids | – | – | – | – | – | – | – | – | – | – | 10mg/ℓ | 1mg/ℓ |
| Copper salts (water-soluble, except complex salts) | 207 | Liquids | – | – | – | – | – | – | – | – | – | – | 10mg/ℓ | 1mg/ℓ |
| 2-aminoethanol*1 | 16 | Liquid (organic solvent) | 2.8 | 1 | 97 | 2.5 | 0.85 | >100 | >100 | 100 | – | – | – | – |
| Xylene | 63 | Liquid (organic solvent) | – | – | – | – | – | – | – | – | – | 100ppm | – | 5mg/ℓ |
| Toluene | 227 | Liquid (organic solvent) | 43.3 | 9.7 | 4.13 | 2.35 | 1.17 | 25.4 | 10.5 | 0.72 | – | 50ppm | – | 5mg/ℓ |

*1 2-aminoethanol is used primarily in the electronic parts washing process within a closed system. It is then refined for reuse or collected without being discharged into air or water areas as waste.

*2 Ministry of the Environment Ecology Toxicity

- Algae growth prevention test: Effect on growth and breeding of algae during exposure to chemical substances for 72 hours, targeting algae (unicellular green algae) that are producers in the water system food chain (50% growth prevention effect concentration: EC 50; no-effect concentration: NOEC).
- Water flea acute swimming prevention test: Effect on water flea swimming activity during exposure to chemical substances for 48 hours, targeting water fleas (crustaceans) that are primarily consumers in the water system food chain (50% swimming prevention effect concentration: EC 50).
- Water flea breeding prevention test: Effect on water flea breeding activity during exposure to a chemical substance for 21 days, targeting water fleas (crustaceans) that are primarily consumers in the water system food chain (50% breeding prevention effect concentration: EC 50; no-effect concentration: NOEC).
- Fish acute toxicity test: Effect on fish during exposure to chemical substances for 96 hours, targeting fish (Japanese killifish) that are upper-level consumers in the water system food chain (50% lethal concentration: LC 50).
- Fish extended toxicity test: Effect on fish during exposure to a chemical substance for 14 days, targeting fishes (Japanese killifish) that are upper-level consumers in the water system food chain (50% lethal concentration: LC 50; no-effect concentration: NOEC).
- EC50: Concentration of a tested substance calculated when the effect is apparent in 50% of tested organisms compared with a control group (group not exposed to the tested substance). For algae, this is the concentration at which the cell density decreases to 50% in 72 hours.
- NOEC: The highest test concentration at which the effect on tested organisms does not indicate significant differences compared with a control group.
- LC50: Concentration of tested substance calculated at a level causing death to 50% of tested organisms.