United States
Environmental Protection

Office of Solid Waste
and Emergency Response

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Office of Solid Waste

EPA

# Environmental Fact Sheet

## EPA Simplifies Land Disposal Restrictions by Establishing a Set of Universal Treatment Standards, and Finalizes Treatment Standards for 42 Newly Listed and Identified Wastes

### Background

The Hazardous and Solid Waste Amendments (HSWA) to the Resource Conservation and Recovery Act (RCRA) enacted in 1984 prohibit the land disposal of untreated hazardous wastes. HSWA requires EPA to set levels or methods of treatment for hazardous wastes to substantially diminish the short-term and long-term threats to human health and the environment. Wastes that meet the treatment standards established by EPA may be land disposed (i.e., placed in a landfill, surface impoundment, waste pile, injection well, land treatment facility, salt dome formation, salt bed formation, or underground mine or cave).

This rule streamlines the existing set of LDR treatment standards. In addition, it establishes treatment standards for 42 of the wastes listed or identified since HSWA was enacted. The schedule for newly listed and identified wastes in this final rulemaking is part of a proposed consent decree signed by EPA and the Environmental Defense Fund.

### Action

In a major move to simplify the LDR program, the Agency is promulgating a set of universal treatment standards for over 200 constituents (see Table 1). These standards apply uniformly to the treatment of the constituent, regardless of the waste in which the constituent is found. The universal treatment standards apply to virtually all waste codes with numerical standards. Furthermore, this rule finalizes LDR treatment standards based on Best Demonstrated Available Technology (BDAT) for 42 newly listed or identified wastes, including coke by-product wastes, chlorotoluene wastes, and organic Toxicity

Characteristic (TC) wastes. Finally, EPA is promulgating regulations that require TC pesticide and highly concentrated ignitable wastes be treated, and not merely diluted, prior to injection into a Class I nonhazardous deep injection well.

## Contact

For further information, or to order a copy of the *Federal Register* notice, please call the RCRA Hotline Monday through Friday, 8:30 a.m. to 7:30 p.m., EST and ask for the rule *Land Disposal Restrictions Phase II--Universal Treatment Standards, and Treatment Standards for Organic Toxicity Characteristic Wastes and Newly Listed Wastes.* The national toll-free number is (800) 424-9346; for the hearing impaired, it is (TDD) (800) 553-7672. In Arlington, VA, the number is (703) 920-9810 or (TDD) (703) 486-3323. Write to the RCRA Information Center (5305), US EPA, 401 M Street, SW, Washington, DC 20460.

Table 1. Universal Treatment Standards for Regulated Hazardous Constituents†

| Regulated Hazardous Organic Constituent | Wastewater Concentration Total Composition (mg/l) | Nonwastewater Concentration Total Composition (mg/l) |
|---|---|---|
| Acenaphthylene | 0.059 | 3.4 |
| Acenaphthene | 0.059 | 3.4 |
| Acetone | 0.28 | 160 |
| Acetonitrile | 5.6 | 1.8 |
| Acetophenone | 0.010 | 9.7 |
| 2-Acetylaminofluorene | 0.059 | 140 |
| Acrolein | 0.29 | Not Regulated |
| Acrylamide | 19 | 23 |
| Acrylonitrile | 0.24 | 84 |
| Aldrin | 0.021 | 0.066 |
| 4-Aminobiphenyl | 0.13 | NR |
| Aniline | 0.81 | 14 |
| Anthracene | 0.059 | 3.4 |
| Aramite | 0.36 | Not Regulated |
| alpha-BHC | 0.00014 | 0.066 |
| beta-BHC | 0.00014 | 0.066 |
| delta-BHC | 0.023 | 0.066 |
| gamma-BHC | 0.0017 | 0.066 |
| Benz(a)anthracene | 0.059 | 3.4 |
| Benzal chloride | 0.055 | 6.0 |
| Benzene | 0.14 | 10 |
| Benzo(a)pyrene | 0.061 | 3.4 |
| Benzo-(b)fluoranthene * | 0.11 | 6.8 |
| Benzo(k)fluoranthene* | 0.11 | 6.8 |
| Benzo(g,h,i)perylene | 0.0055 | 1.8 |
| Bis(2-chloroethoxy)methane | 0.036 | 7.2 |
| Bis(2-chloroethyl)ether | 0.033 | 6.0 |
| Bis(2-chloroisopropyl)ether | 0.055 | 7.2 |
| Bis(2-ethylhexyl)phthalate | 0.28 | 28 |
| Bromodichloromethane | 0.35 | 15 |
| Bromomethane | 0.11 | 15 |
| 4-Bromophenyl phenyl ether | 0.055 | 15 |
| n-Butyl alcohol | 5.6 | 2.6 |
| Butyl benzyl phthalate | 0.017 | 28 |
| 2-sec-Butyl-4,6- dinitrophenol | 0.066 | 2.5 |
| Carbon disulfide | 3.8 | 4.8** |
| Carbon tetrachloride | 0.057 | 6.0 |
| Chlordane | 0.0033 | 0.26 |
| p-Chloroaniline | 0.46 | 16 |
| Chlorobenzene | 0.057 | 6.0 |
| Chlorobenzilate | 0.10 | Not Regulated |
| 2-Chloro-1,3-butadiene | 0.057 | 0.28 |
| Chlorodibromomethane | 0.057 | 15 |
| Chloroethane | 0.27 | 6.0 |
| Chloroform | 0.046 | 6.0 |
| p-Chloro-m-cresol | 0.018 | 14 |
| 2-Chloroethyl vinyl ether | 0.062 | Not Regulated |
| Chloromethane (Methyl chloride) | 0.19 | 30 |
| 2-Chloronaphthalene | 0.055 | 5.6 |
| 2-Chlorophenol | 0.044 | 5.7 |
| 3-Chloropropylene | 0.036 | 30 |
| Chrysene | 0.059 | 3.4 |
| Cresol (m- and p-isomers) | 0.77 | 5.6 |

| | | |
|---|---|---|
| o-Cresol | 0.11 | 5.6 |
| Cyclohexanone | 0.36 | 0.75** |
| o,p'-DDD | 0.023 | 0.087 |
| p,p'-DDD | 0.023 | 0.087 |
| o,p'-DDE | 0.031 | 0.087 |
| p,p'-DDE | 0.031 | 0.087 |
| o,p'-DDT | 0.0039 | 0.087 |
| p,p'-DDT | 0.0039 | 0.087 |
| Dibenz(a,e)pyrene | 0.061 | Not Regulated |
| Dibenz(a,h)anthracene | 0.055 | 8.2 |
| tris-(2,3-Dibromopropyl) phosphate | 0.11 | 0.10 |
| 1,2-Dibromo-3-chloropropane | 0.11 | 15 |
| 1,2-Dibromoethane (ethylene ibromide) | 0.028 | 15 |
| Dibromomethane | 0.11 | 15 |
| m-Dichlorobenzene | 0.036 | 6.0 |
| o-Dichlorobenzene | 0.088 | 6.0 |
| p-Dichlorobenzene | 0.090 | 6.0 |
| Dichlorodifluoromethane | 0.23 | 7.2 |
| 1,1-Dichloroethane | 0.059 | 6.0 |
| 1,2-Dichloroethane | 0.21 | 6.0 |
| 1,1-Dichloroethylene | 0.025 | 6.0 |
| trans-1,2-Dichloroethylene | 0.054 | 30 |
| 2,4-Dichlorophenol | 0.044 | 14 |
| 2,6-Dichlorophenol | 0.044 | 14 |
| 2,4-Dichlorophenoxyacetic acid (2,4-D) | 0.72 | 10 |
| 1,2-Dichloropropane | 0.85 | 18 |
| cis-1,3-Dichloropropylene | 0.036 | 18 |
| trans-1,3-Dichloropropylene | 0.036 | 18 |
| Dieldrin | 0.017 | 0.13 |
| Diethyl phthalate | 0.20 | 28 |
| p-Dimethylaminoazo-benzene | 0.13 | Not Regulated |
| 2,4-Dimethyl phenol | 0.036 | 14 |
| Dimethyl phthalate | 0.047 | 28 |
| Di-n-butyl phthalate | 0.057 | 28 |
| 1,4-Dinitrobenzene | 0.32 | 2.3 |
| 4,6-Dinitrocresol | 0.28 | 160 |
| 2,4-Dinitrophenol | 0.12 | 160 |
| 2,4-Dinitrotoluene | 0.32 | 140 |
| 2,6-Dinitrotoluene | 0.55 | 28 |
| Di-n-octyl phthalate | 0.017 | 28 |
| Di-n-propylnitrosamine | 0.40 | 14 |
| 1,4-Dioxane | Not Regulated | 170 |
| 1,2-Diphenyl hydrazine | 0.087 | Not Regulated |
| Diphenylnitrosamine* | 0.921 | 13 |
| Diphenylamine* | 0.921 | 13 |
| Disulfoton | 0.017 | 6.2 |
| Endosulfan I | 0.023 | 0.066 |
| Endosulfan II | 0.029 | 0.13 |
| Endosulfan sulfate | 0.029 | 0.13 |
| Endrin | 0.0028 | 0.13 |
| Endrin aldehyde | 0.025 | 0.13 |
| Ethyl acetate | 0.34 | 33 |
| Ethyl benzene | 0.057 | 10 |
| Ethyl ether | 0.12 | 160 |
| Ethyl methacrylate | 0.14 | 160 |
| Ethylene oxide | 0.12 | Not Regulated |
| Famphur | 0.017 | 15 |

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|---|---|---|
| Fluoranthene | 0.068 | 3.4 |
| Fluorene | 0.059 | 3.4 |
| Heptachlor | 0.0012 | 0.066 |
| Heptachlor epoxide | 0.016 | 0.066 |
| Hexachlorobenzene | 0.055 | 10 |
| Hexachlorobutadiene | 0.055 | 5.6 |
| Hexachlorodibenzofurans | 0.000063 | 0.001 |
| Hexachlorodibenzo-p-dioxins | 0.000063 | 0.001 |
| Hexachlorocyclopentadiene | 0.057 | 2.4 |
| Hexachloroethane | 0.055 | 30 |
| Hexachloropropylene | 0.035 | 30 |
| Indeno(1,2,3-c,d)pyrene | 0.0055 | 3.4 |
| Iodomethane | 0.19 | 65 |
| Isobutyl alcohol | 5.6 | 170 |
| Isodrin | 0.021 | 0.066 |
| Isosafrole | 0.081 | 2.6 |
| Kepone | 0.0011 | 0.13 |
| Methacrylonitrile | 0.24 | 84 |
| Methanol | 5.6 | 0.75** |
| Methapyrilene | 0.081 | 1.5 |
| Methoxychlor | 0.25 | 0.18 |
| 3-Methylchloanthrene | 0.0055 | 15 |
| 4,4-Methylene bis (2-chloraniline) | 0.50 | 30 |
| Methylene chloride | 0.089 | 30 |
| Methyl ethyl ketone | 0.28 | 36 |
| Methyl isobutyl ketone | 0.14 | 33 |
| Methyl methacrylate | 0.14 | 160 |
| Methyl methansulfonate | 0.018 | Not Regulated |
| Methyl parathion | 0.014 | 4.6 |
| Naphthalene | 0.059 | 5.6 |
| 2-Naphthylamine | 0.52 | Not Regulated |
| p-Nitroaniline | 0.028 | 28 |
| o-Nitroaniline | 0.27 | 14 |
| Nitrobenzene | 0.068 | 14 |
| 5-Nitro-o-toluidine | 0.32 | 28 |
| o-Nitrophenol | 0.028 | 13 |
| p-Nitrophenol | 0.12 | 29 |
| N-Nitrosodiethylamine | 0.40 | 28 |
| N-Nitrosodimethylamine | 0.40 | 2.3 |
| N-Nitrosodi-n-butylamine | 0.40 | 17 |
| N-Nitrosomethylethylamine | 0.40 | 2.3 |
| N-Nitrosomorpholine | 0.40 | 2.3 |
| N-Nitrosopiperidine | 0.013 | 35 |
| N-Nitrosopyrrolidine | 0.013 | 35 |
| Parathion | 0.014 | 4.6 |
| Pentachlorobenzene | 0.055 | 10 |
| Pentachlorodibenzofurans | 0.000035 | 0.001 |
| Pentachlorodibenzo-p-dioxins | 0.000063 | 0.001 |
| Pentachloroethane | 0.055 | 6.0 |
| Pentachloronitrobenzene | 0.055 | 4.8 |
| Pentachlorophenol | 0.089 | 7.4 |
| Phenacetin | 0.081 | 16 |
| Phenanthrene | 0.059 | 5.6 |
| Phenol | 0.039 | 6.2 |
| Phorate | 0.021 | 4.6 |
| Phthalic acid | 0.055 | 28 |
| Phthalic anhydride | 0.055 | 28 |
| Pronamide | 0.093 | 1.5 |

| | | |
|---|---|---|
| Propanenitrile (Ethyl cyanide) | 0.24 | 360 |
| Pyrene | 0.067 | 8.2 |
| Pyridine | 0.014 | 16 |
| Safrole | 0.081 | 22 |
| Silvex (2,4,5-TP) | 0.72 | 7.9 |
| 2,4,5,-T | 0.72 | 7.9 |
| 1,2,4,5-Tetrachlorobenzene | 0.055 | 14 |
| Tetrachlorodibenzofurans | 0.000063 | 0.001 |
| Tetrachlorodibenzo-p-dioxins | 0.000063 | 0.001 |
| 1,1,1,2-Tetrachloroethane | 0.057 | 6.0 |
| 1,1,2,2-Tetrachloroethane | 0.057 | 6.0 |
| Tetrachloroethylene | 0.056 | 6.0 |
| 2,3,4,6-Tetrachlorophenol | 0.030 | 7.4 |
| Toluene | 0.080 | 10 |
| Toxaphene | 0.0095 | 2.6 |
| Tribromomethane (Bromoform) | 0.63 | 15 |
| 1,2,4-Trichlorobenzene | 0.055 | 19 |
| 1,1,1-Trichloroethane | 0.054 | 6.0 |
| 1,1,2-Trichloroethane | 0.054 | 6.0 |
| Trichloroethylene | 0.054 | 6.0 |
| Trichloromono fluoromethane | 0.020 | 30 |
| 2,4,5-Trichlorophenol | 0.18 | 7.4 |
| 2,4,6-Trichlorophenol | 0.035 | 7.4 |
| 2,4,5-Trichlorophen-oxyacetic acid | 0.72 | 7.9 |
| 1,2,3-Trichloropropane | 0.85 | 30 |
| 1,1,2-Trichloro-1,2,2-trifluoroethane | 0.057 | 30 |
| Vinyl chloride | 0.27 | 6.0 |
| Xylenes (total) | 0.32 | 30 |
| Total PCBs | 0.1 | 10 |

| Regulated Hazardous Metal Constituent | Wastewater Concentration Total Composition (mg/l) | Nonwastewater Concentration TCLP (mg/l) |
|---|---|---|
| Antimony | 1.9 | 2.1 |
| Arsenic | 1.4 | 5.0 |
| Barium | 1.2 | 7.6 |
| Beryllium | 0.82 | 0.014 |
| Cadmium | 0.69 | 0.19 |
| Chromium (total) | 2.77 | 0.86 |
| Cyanide (total) | 1.2 | 590*** |
| Cyanide (amenable) | 0.86 | 30*** |
| Fluoride | 35 | Not Regulated |
| Lead | 0.69 | 0.37 |
| Mercury--retort residues | N/A | 0.20 |
| Mercury--not retort residues | 0.15 | 0.025 |
| Nickel | 3.98 | 5.0 |
| Selenium | 0.82 | 0.16 |
| Silver | 0.43 | 0.30 |
| Sulfide | 14 | Not Regulated |
| Thallium | 1.4 | 0.078 |
| Vanadium | 4.3 | 0.23 |
| Zinc**** | 2.61 | 5.3 |

† These universal treatment standards do not apply to characteristic metal wastes D001 to D011.

* This standard represents the sum of the concentrations for each of this pair of constituents.

* * Measured in waste extract using TCLP (mg/l).

*** Unit = mg/kg based on TOTAL concentration. As analyzed using SW-846 Method 9010 or 9012; sample size 10 gram; distillation time one hour and fifteen minutes.

**** Zinc is not an "underlying hazardous constituent" in characteristic wastes.