



*Innovative Solutions, For A Better Tomorrow.*



## Steam Cleaners

Steam cleaners are used in many industrial applications to clean parts and equipment. Some major users of steam cleaning equipment include truck and bus washing, engine cleaning, and all types of repair facilities.

After treatment by Electro Dynamic Precipitation, the clear water met all federal secondary drinking water standards with the exception of surfactants. This was not a concern because the water was recycled through the steam cleaner and the recycled surfactants reduced the need to add soap to the steam cleaner system. It should be noted that charcoal could be used in conjunction with the EC process to make the water meet secondary drinking water standards. The sludge from the EC process contained 90 mg/kg oil and grease.

## Raw Sewage

Electro Dynamic Precipitation has proven effective in treating sewage water, sewage sludge concentrations, and sewage sludge metal fixation sufficiently to enable land application.

Municipal Sewage From POTW Discharge Water			
	Raw	Treated	% Removal
<b>(002-156)</b>			
Iron (mg/l)	1,050	14	99%+
TSS (mg/l)	4,620	7	99%+
Bacteria (cfu)	110,000,000	2,700	99%+
<b>(002-179)</b>			
BOD (mg/l)	79	0	99%+
TSS (mg/l)	14	6	99%+
<b>(002-187)</b>			
BOD (mg/l)	500	19	96%
TSS (mg/l)	3,245	11	99%+
<b>(008-848)</b>			
BOD (mg/l)	4,445	810	84%
TSS (mg/l)	16,500	105	99%
Volatile solids	12,400	176	99%
TSS (mg/l)	12	6	50%
<b>Waterfall Study</b>			
CO <sub>2</sub>	490	26	94.7%
Total Solids	602	401	43.4%
Suspended Solids	73	7	90.4%
Settleable Solids	21	5	76.2%
Total Hardness	127	11	91.3%
Alkalinity	267	11	98.8%
pH	6.98	7.02	-
OD	0.98	+0.1	69.0%
BOD	220	8	96.4%
Coliform	310,000/ml	0	99%+
Phosphates	28	0	99%+



### Water Treatment Applications

Electro Dynamic Precipitation is an extremely effective wastewater treatment system, reclaiming water for reuse and the harvesting of valuable by-products. Examples of possible water reuse come from treating waste streams generated from steam cleaners, pressure washers, textile manufacturing, metal platers, meat and poultry processors, commercial laundry, mining operations and municipal sewage system plants. The following examples document the positive effects of Electro Dynamic Precipitation in a wide variety of industrial and municipal applications:

- Coal
- Commercial Laundries
- Distillation / Desalination
- Emergency Potable water
- Food Processing Industry
- Metal recovery
- Mining
- Potable water
- Process rinse and wash water
- Radioactive isotope removal
- Sewage treatment
- Steam cleaners
- Surface water clean up
- Marble and ceramic industries waste water
- Textile
- Water pretreatment

### Metal Plating

Metal platters use Electro Dynamic Precipitation to remove metals from the plating rinse water tank, enabling them to reuse the remediate water as process water. With no water discharge, they avoid potential liability, save on sewer cost, monitoring, and testing fees, as well as the cost of make-up water. The removal of 90%± metals is sufficient reduction to achieve quality plating results.

Element	Raw, J.PPM	EC Treated, J.PPM	% Removal
Cd	31.0	0.34	98.90%
CN	25.1	0.98	96.10%
Cr	230	0.0218	99.99%
Cu	287	0.48	98.80%
Pb	24.0	0.010	99.58%
Ni	25	0.0731	99.71%
Zn	271.00	0.14	99.95%

### Laundries

Laundry capacity can be increased three times, using the same amount of fresh water, by recycling the wash and rinse water. Reclaimed wash and rinse water saves the cost of purchasing water, soap, heat and sewer.

The cost of wash and rinse water disposal and the possibility of fines for contaminants in the water going to the city sewer are eliminated because there is not discharge to the city sewer. The heavy metals, oil, and grease are separated from the water during the reclamation process in an environmentally safe oxide form.

Raw	% Removal
Suspended Solids	80% to 99%
Oil and Grease	93% to 99%
Total Organic Carbon	98% to 99%
Biochemical Oxygen Demand	32% to 99%
Metal ions in concentration less than 100 mg/l	97% to 99%
Bacteria (fecal Coliform)	99% to 99+%
Textile dye	99% to 99%
Pesticides	97% to 99%