



# Metal Plating Wastewater Information Handout

Metal plating facilities must adhere to The City of Calgary Wastewater Bylaw 14M2012 and The City of Calgary Stormwater Bylaw 37M2005. Use these tips to comply with regulatory requirements, lower fees and protect your business, the community and the environment.

### Substances of concern

Plating processes can produce several undesirable by-products including air emissions, wastewater, and hazardous solid wastes. Waste reduction should be the goal in this industry as the contaminants of concern are generally toxic and highly resistant to biological treatment.

Substances of concern	Sources
Metals	Plating baths and rinse water containing heavy and precious metals
Solids	Metal shavings/particles, paint, dirt, grime
pH	Caustic and acidic chemicals from cleaning and treatment processes

### Waste reduction and pre-treatment options

Prior to surface refinishing it is important to take steps to minimize surface contamination of the object. This will reduce the need for cleaning and chemical usage during surface preparation.

### Rinse Water

It is estimated that up to 90 % of wastewater discharged from plating operations comes from the rinsing stage. Rinse tank contamination can be reduced by changing plating bath viscosity, chemical concentration, surface tension, speed of removal and temperature. Agitating rinse tanks can improve the efficiency of the rinsing process and reduce the required contact time. Recovery tanks can also be installed to reduce potential for contamination of the rinse water.

### Neutralization

Neutralization of acidic and caustic wastewater can be done either as batch or a continuous process depending on the amount of wastewater generated.

### Wastewater Treatment Options

Common metals (cadmium, chromium copper, lead, nickel and zinc) generated from electroplating and metal finishing can be removed from water by hydroxide precipitation. Complex metals treatment options may include high pH precipitation, chemical reduction or sulfide precipitation. All spent process solutions should be collected and disposed of at an approved facility.

## What to do if you have an accidental release

In the event of an unintentional release it is important to act quickly to prevent the material from entering the wastewater or stormwater system.

The Wastewater Bylaw section 35 under “*Release Reporting*” requires the person who released or allowed the release to notify:

- The 9-1-1 emergency telephone number.
- The City of Calgary by contacting 311 as well as the Industrial Monitoring Group at [img@calgary.ca](mailto:img@calgary.ca)
- The owner of the premise where the release occurred.
- Any other person that may be affected by the release.

For any spills that could harm the environment you will also need to report the spill to Alberta Environment.

## Restricted substances (Wastewater Bylaw 14M2012)

The table below outlines some of the substances that may apply to metal plating operations. For a complete list of substances please refer to Schedule “B” in Wastewater Bylaw 14M2012.

Substance	Concentration Limit (mg/L)
Aluminum	50
Cadmium	0.7
Chromium	3
Cyanide	1.2
Copper	2
Iron	50
Nickel	2
Tin	5
Zinc	2
Methylene Chloride	0.09

For more information please contact 311 or the Industrial Monitoring Group at [img@calgary.ca](mailto:img@calgary.ca)

## Wastewater Bylaw 14M2012 Fines for Non-Compliance

### Schedule “A” Prohibited Substances

*The following must not be released into the wastewater system:*

*(k) wastewater having a pH of less than 5.5 or greater than 10;*

*(n) corrosive or toxic wastewater that causes or will cause an adverse effect.*

### Release of Substances

*22 (1) (a) A person must not release or allow the release of any wastewater that contains a prohibited substance into the wastewater system*

**Specified Penalty \$3000**

*35 (1) Failing to immediately notify the proper authorities in accordance with subsection 35 (1) where a substance is released into the wastewater system in contravention of the Bylaw*

**Specified Penalty \$1000**

### Records Maintenance

*26 (4) (b) Failing to maintain a maintenance schedule and record of each maintenance for the pre-treatment system installed at a premises for a period of two years, including records for disposal of waste residue*

**Specified Penalty \$500**