

Advice and Counsel

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Drivers and Barriers to Pollution Prevention In Metal Finishing

Dear Advice and Counsel,

I am a member of the regulating community, and I would like you to address the issue of what, if any, barriers and drivers exist for pollution prevention in the metal finishing industry.

Signed, The Bad Guy

Dear Bad Guy,

A recent survey conducted by the U.S. EPA concluded that drivers and barriers to pollution prevention vary for different "tiers" in the metal finishing industry:

Tier 1

These are top firms, driven by recognition and pride in' industry performance. They see the economic payoffs of strategic environmental investments. They maximize flexibility in compliance and promote innovative approaches and willingness to share knowledge in pollution prevention methods.

Tier 2

These firms are driven mainly by the need to maintain regulatory compliance. Barriers to pro-active performance include lack of capital, insufficient information, little positive re-enforcement, and an "unlevel playing field," created by lack of uniform enforcement on their competitors. Many facilities at this level are heavily dependent on their suppliers for methods of pollution prevention.

Tier 3

These are older, out-dated facilities with a strong fear of liability under environmental regulations, finding it difficult to improve because of a shortage of funds, knowledge and floor space.

Tier 4

These are "renegade" shops that compete at an unfair advantage, gained through non-compliance with environmental regulations. These facilities may be "hidden" and unreported, or somehow may be projecting an appearance of compliance.

As for barriers, inconsistency among regulatory requirements and enforcement actions at federal, state and local levels has created major barriers in advancing pollution prevention. This is because of the "uncertainty" factor about upcoming or modified regulations that might render a major investment unusable or problematic. Uncertainty also makes long-range planning difficult . . . if not impossible.

Aside from economic benefits, there are no programs in effect for "rewarding" a facility that does a major job of pollution prevention. In fact, the regulations appear to be stacked *against* pollution prevention. Consider the following:

Listing of Hazardous Waste (F-0006) (RCRA, 40CFR part 261)

The waste generated from the wastewater pretreatment system from an electroplating operation is a hazardous waste because of listing. (There are very few exemptions, such as waste from pretreatment of rinsewater from non-cyanide zinc electroplating on ferrous substrates.) There are provisions in the regulations for "delisting" a hazardous waste, but the procedures are extremely expensive and time-consuming. The generated waste, in many cases, would not meet the listing criteria and theoretically would meet non-hazardous status, if the EPA created a procedure for determining whether or not a metal finishing waste meets the listing criteria. Until such time, metal finishing facilities appear to be generating large volumes of hazardous wastes, simply because no viable method exists for proving it non-hazardous.

Mixture/Derived from Rule (RCRA, 40CFR part 261.3(a)(2)(iv)

This provision of RCRA regulations effectively causes any mixture of hazardous waste with non-hazardous materials to become a hazardous waste, in total. Further, any material derived from a hazardous waste is also considered hazardous. Even if the waste or product derived from the waste is treated, or is inherently non-hazardous, there is no "out." This provision has been challenged successfully in court, but the EPA is enforcing it on an interim basis, while it seeks to develop methods of defining a hazardous waste. In the meantime, this RCRA provision inhibits recycling of hazardous waste, except by a few companies that have spent the large sums of money necessary to "delist" their products from recycled hazardous waste. It also drives up the cost of disposing recyclable waste and creates recycling opportunities for only the facilities that can afford to send the waste to such recycling firms (all of which are located outside the state of Illinois, except for a single facility, which has a very limited capability).

Metal Finishing Standards (CWA, 40CFR part 433)

In the promulgation of the metal finishing standards, the EPA stated its intent to move existing jobshop electroplaters from 40CFR part 413 regulation to regulation under part 433. The difference between the two standards is significant. The following is not a complete listing of metal finishing discharge regulations, but it is provided to illustrate the level of difference in the standards between the two categories:

| | Pretreatm | nent Standards | (mg/L) | |
|-------------------------------|-------------|----------------|-----------------|------------|
| | Jobshops | | Metal Finishers | |
| Pollutant: | 1Day Max | 4 Day Avg | 1 Day Max | 30 Day Avg |
| Cadmium | 1.2 | 0.7 | 0.69 | 0.26 |
| Chromium | 7.0 | 4.0 | 2.77 | 1.71 |
| Copper | 4.5 | 2.7 | 3.38 | 2.07 |
| Lead | 0.6 | 0.4 | 0.69 | 0.43 |
| Nickel | 4. 1 | 2.6 | 2.61 | 1.48 |
| Silver | - | - | 0.43 | 0. 24 |
| Zinc | 4.2 | 2.6 | 2.61 | 1.48 |
| Cyanide-T | 1.9 | 1.0 | 1.2 | 0.65 |
| TTO | 2.13 (grab) | | 2.13 (grab) | |
| рН | | | 6-9 | 6-9 |
| Cu+Zn+Cr+Ni (Total Metals) | 10.5 | 6.8 | - | - |

The table above shows the most-commonly applied sewer discharge regulations. Note that jobshops have, in general, higher limitations than metal finishers. We should also note that new-source metal finishers must meet regulated cadmium discharge levels at 0.11 mg/L, 1 Day Max, and 0.07 mg/L, 30 Day Avg. Also, the cyanide limits for metal finishers must be complied with at the point of *treatment* (as opposed to the end-ofpipe, for jobshop metal finishers).

An existing jobshop electroplating facility risks the reclassification into the new-source metal finishing category, if it invests the money necessary to relocate or tear down an older processing line and replace it with a new" one, incorporating up-to-date pollution prevention methods,

Superfund, Joint and Several Liability Provisions

A number of metal finishing firms face significant environmental liabilities and clean-up costs, if they discontinue operations and attempt to liquidate their assets. This potential liability sets up the "double whammy" of creating a barrier to exit for these firms and effectively eliminating access to capital for improvements. Liability provisions under Superfund, holding lenders of capital liable in the event of a Superfund clean-up at a metal finishing facility, causes lenders to be extremely cautious in providing necessary funding for metal finishers to improve their operations and install pollution prevention methods.

Other Barriers To Pollution Prevention

- •There is an embarrassing tendency of governmental defense agencies to continue to specify environmentally harmful coatings to be applied to military components-even when less-harmful alternatives are available
- A concern exists about the "break-in period" that normally is required after a pollution prevention device or technique is installed. Invariably, the "learning

curve" will cause a violation of a local or state regulation, while an operating parameter is being refined, or if the equipment breaks down. The resulting violation acts as a deterrent to the installation of the device.

- •The industry has seen many charlatan "saviors," who profess to have all the answers in their "little black box." Poor experiences and lost capital expended on such devices have created an aura of suspicion about any new technology that enters the market.
- .Cross-media effects can also inhibit

pollution, as when an improved method for scrubbing air emissions ends up creating more scrubbant waste to treat, at higher concentrations than before.

- A considerable lack of history and knowledge about substitute "cleaner" processes creates a hesitant attitude about investing in a substitute process.
- There is considerable concern about recycling methods contaminating the process on which the recycling method is installed, causing the entire process solution to be sent off-site for treatment/ disposal. It is not uncommon for a metal finishing process solution to cost \$15/ gal to make up (some solutions are as high as \$30/gal and precious-metals plating solutions can cost thousands of dollars/gal). By recycling rinsewater to such processes (as opposed to treating), the concern is that, in the long term, the recycling method will contaminate the process beyond salvageability, creating more waste than was saved.

I don't want to leave the impression that this industy has not instituted pollution prevention practices. In fact, it has made significant strides in pollution prevention despite these obstacles. \check{Z}